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**Pharmacological Basis of Therapeutics, 1941, Goodman and Gilman, p. 856.*

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VOL. CIII SEPTEMBER 1943 NO. 798

Presidential Address

W. W. DIMOCK, B.S.A., D.V.M.
Lexington, Kentucky

RECENTLY, I have read the annual address of each of the last five presidents of the AVMA. A retiring president naturally emphasizes the problems which are of immediate interest and of current importance. Individual addresses, among these, completely covered the development of organized veterinary medicine for a period of eighty years. Because of the completeness of these addresses viewed alone and collectively, together with the fact that the 1943 meeting is not a fulltime annual convention, but rather a business meeting with a short program confined to wartime problems, I shall not attempt to review the progress and success attained during the lifetime of our organization. I plan to confine my remarks to problems which have been brought to the attention of the Association during the two years that I have served as an executive officer—problems which are now before us for solution.

OUR MAIN OBJECTIVE

Frequently, letters are received at the central office inquiring about what the AVMA is doing or might do to help solve the various problems that come up to trouble the practitioner and others in their legitimate field of activity. The executive officers are well aware of the many perplexing problems related to our work and to the welfare of the livestock industry. They stand ready to assist in correcting all matters vital to our profession, when such matters are of national scope and of a nature that permit and justify action by our national organization. Our association always has made and will continue to make its position known on the fundamental principles which we know to be correct, not for selfish reasons, but for the best interests of all concerned in the control, prevention, and treatment of animal diseases.

The AVMA works for the best interests of the veterinarian. All of the problems coming to its attention are given full consideration, although the time and thought expended by the executive officers in an effort to find a satisfactory solution or accomplish the most desirable result may not be immediately apparent. In the long run, the great influence which our organization exerts, furthers not only our welfare as a profession, but also the best interests of the nation and particularly of the livestock industry with which we are so directly related and concerned.

THE USE AND MISUSE OF BIOLOGICAL PRODUCTS

The use of biological products, their distribution, how, when, and by whom they shall be used, is today the most debated question in veterinary medicine. If I had as much interest in and consideration for my fellowman's livestock as I have for my own, I would say to him: "For my own livestock, I want the best biological product obtainable, not one made to meet only a minimum standard. I want this product administered by a person who, I am sure, knows exactly how to administer it prop-

Delivered at the opening session of the war conference, eightieth annual meeting, St. Louis, Aug. 25-26, 1943.

erly; and not least of all, I want to know that the animals treated are affected with or exposed to the disease for which the product used is not alone 'indicated,' but, from actual data, is known to serve a definite purpose."

Over a period of forty years, the older members of our profession have seen many changes. Some of them were made advisable by new discoveries, which, in turn, made modifications in methods and technique necessary. The development of biological and other products for use in the control, prevention, and treatment of animal diseases, for example, made the drenching bottle obsolete and the hypodermic syringe supreme. The veterinary profession must be willing to assume its share of responsibility for perhaps over emphasizing the idea that the use of a hypodermic syringe is our first line of defense. The livestock owner has come to feel that it is as important for his animals, sick or well, to have a hypodermic injection as was formerly his belief that the first thing to do was to give the animal a dose of salts.

INAPPARENT CHANGES REVEALED BY WAR

Under normal conditions, changes have occurred so gradually over a period of years that their significance is not readily apparent. During the present emergency, however, it is to be expected that many changes will occur and adjustments be made during a short period of time. The final results of such changes cannot be forecast. I dare say that the majority of these emergency measures will be found to be worth while and consequently become permanent. However, no changes, be they ever so radical, can long affect unfavorably the position the veterinarian occupies in the world's work, which, by education, training, and experience, he is so well prepared to do.

Discussing the past, present, and future of veterinary medicine offers an opportunity for many shades of opinion. In education, in research, and in practice, the opinion would be almost unanimous that veterinary medicine in the United States has been a great success. The opinion with regard to its present status, especially its accomplishments during the war emergency, would be to the effect that our profession is well prepared, and in all major aspects is doing a yeoman's service.

As to the future, with its inevitable changes and new problems, there would be a greater variety of opinion; yet, I am confident that the consensus is that there will be, for all time to come, an important place for the veterinarian. It is noteworthy, however, that in every group having a general or common interest, there will be found those who are reluctant to make changes, and again, there will be those who are impatient and feel that, without change, no worth-while progress will be made. The veterinarian, nevertheless, will not only continue to deal effectively with the problems that, up to this time, have come under his jurisdiction, but will be prepared to solve any new ones and meet successfully new conditions as they develop.

QUESTION OF THE UNQUALIFIED

I feel the urge to say a word concerning that considerable portion of our country where farming is, at the best, on a subsistence basis. These areas, on the whole, are without competent veterinary service. As a result, men without any basic knowledge of the nature of disease, but with some native ability and the inclination, become the ones consulted and called upon to help, and in time, devote most of their time to treating sick animals. Laws, rules, and regulations, however strict and rigidly enforced, will not solve this and other similar problems which in one way or another are, and should be, the concern of the veterinary profession.

During the last thirty-five years, we have heard considerable criticism of the county agent and county agricultural high school teachers because of their activities in dealing with animal diseases. I have had very close contact with many of the men in both groups, particularly with the county agent, and have come to the conclusion that 100 per cent of them are friendly to the veterinary profession. For every five who, through choice or from pressure of circumstances, piddle around in animal-disease work, there are ninety-five who, if they were men who resorted to prayer every night on bended knee before retiring, would pray that tomorrow the best veterinarian in the world might come and settle in the county in which they are located. If the county agent in the county in which you

practice is not your best friend, then there is a reason for it; the reason should be determined and adjustments made.

There are many very substantial, sound-thinking persons in this country who honestly and sincerely believe that the low income farmers who possess livestock are entitled to some professional service for those animal-disease problems which economically affect their livelihood and the welfare of the community. The time is not far distant when some plan to provide such service will be put into effect. I put the question to you to answer and solve as you think best. Should the veterinary profession, including every member in every branch, take part in arriving at a solution, or are we going to wait until someone outside our profession formulates a plan and puts it into operation? I think we should be the group to formulate the plan, at least to take part in its formulation, and attempt to make sure that the plan adopted is sound and provides a service that is an improvement over that which, at present, is available.

THE COMING PART TIME PRACTITIONER

Within a very few years, we are going to have county or area veterinarians who will receive remuneration from federal, state, or county funds sufficient to enable them to live in those isolated sections having a limited livestock population where a veterinarian otherwise would not be willing to live, and possibly could not, if dependent on an income from fees alone. My suggestion would be that the supplementary support come from state and county funds rather than federal. The federal government is already doing more than its share in supporting financially many lines of endeavor. If the government should contribute to this kind of service, the money should be turned over to the state, be matched dollar for dollar with state or county funds, and the work be directed by an official of the state. From the beginning, the federal government, through the Bureau of Animal Industry, has assumed the leadership and responsibility for the control and suppression of diseases of great economic importance, that are highly transmissible or related to public health problems.

It seems to me that we have reached the time in our development as a nation when we must decide whether we shall turn all of the difficult problems over to the federal government, or whether we shall deal with them locally through state and county action. It has already been suggested that more veterinarians connected with the federal government be assigned to the respective states to take part in animal-health problems and to handle diseases of an infectious or contagious nature. This suggestion is receiving favorable consideration. Under wartime conditions, changes in plan not only can and often must be made, but usually will be accepted without full deliberation. As veterinarians, we should remember that a change made to meet an emergency may prove popular and in general, satisfactory, and thus be continued under peacetime conditions, although not the most satisfactory in all respects either to the best interest of the practitioner or to many veterinary activities of a state or local nature. It is generally not considered officious for anyone to make suggestions; at any rate, it is one of our inalienable rights to speak our minds, to conscientiously either support or oppose a plan if, in our opinion, it is not to the best interest of all concerned. Whatever is proposed in the way of changes in, or additions to, our present system should be thought out in every detail before being adopted and put into operation. Recently, the following suggestion was made: "In the interests of efficiency and to avoid divided authority, livestock-disease control work in all its phases in the respective states should be under the direction of one responsible state livestock sanitary official who, by training and experience, is qualified for the position."

In the national-state plans for public highways, federal appropriations are turned over to the state with certain specifications as to their use and the type of road to be constructed. In the Agricultural Extension Service, federal funds are allotted to the state for use by the state director of agricultural extension. A plan of procedure is agreed upon in advance. The same general plan in the allotment of federal funds has been followed in education, in research, and in many other lines of national importance. I would be in favor of the same kind of financial arrangement between the federal and state governments for the control and prevention of animal

diseases as is followed in the instances cited above.

SUCCESSFUL METHODS DIFFER

We have done exceptionally well by the test and slaughter method of dealing with tuberculosis, foot-and-mouth disease, and a few other diseases. The result of dealing with Texas fever has surpassed the expectations of the most optimistic. The very nature of Bang's disease, however, necessitates somewhat different methods of procedure, as does mastitis. Since some feel that vaccination may be the real solution of these two problems, it is sure to be given an extensive trial.

Policies and procedures for dealing with some diseases may, from the nature of the disease and method of diagnosis, be easily and efficiently directed *in absentia*. However, there are many other diseases which, because of their nature and varying characteristics, require much more detailed supervision, and more special training and experience on the part of those dealing with them. Thus, the problem of directing this work cannot most satisfactorily be done by remote control. A national and state policy should be agreed upon; thus, the details of administration would be in the hands of a state official.

There are a number of diseases of great economic importance that will finally have to be dealt with through coöperative and unified action. Good examples of these are hog cholera and swine erysipelas. To deal effectively with these two diseases, we must have some regulations in addition to those now in force, which include vaccination. I believe it is possible for each state to have a state, coöperative, hog-cholera control program that would be satisfactory and acceptable as regards interstate shipments without this control being taken over completely by the federal government and administered from Washington. The same thing can be said about rabies, and, as a matter of fact, about any disease problem, the solution of which, because of its general nature, is beyond the capacity of the lone practitioner.

"BUREAUCRAT" AND "DICTATOR"

During the past few years, the words "bureaucrat" and "dictator" have been thrown around with abandon and no small amount of criticism and sarcasm. Good management is recognized as all-important to the success of any project. One can manage his own business, or he can delegate the problem of management to someone else. The time has come when it is going to be decided, perhaps for all time, whether all the different and many disease problems, their suppression, control, and prevention, are to be under the direct supervision of and administered by the Bureau of Animal Industry, United States Department of Agriculture, or whether they will be handled and managed by officials and others within the state, and counties of the respective states of the Union.

I am confident that each and every thing that really needs to be done for the control of animal diseases can be done without further centralization of authority, and without interfering with the activities of the private practitioner of veterinary medicine.

OUR PUBLIC HEALTH RELATIONSHIP

The rôle of the veterinarian in the field of public health has long been recognized. As our knowledge of the transmission of animal diseases to man has grown, the need for competent veterinary services in safeguarding the public health has become increasingly evident. When speaking of the veterinarian in relation to public health, we think almost invariably of his activities in food inspection, in epidemiology, and in public health laboratory work. The unprecedented good health of our armed forces is attributable in no small part to the training and efficiency of the personnel of the Veterinary Corps.

In reality, the veterinary profession plays a much larger part in the preservation of the public health and in preventing the transfer of diseases from animals to man than is generally recognized. Every practitioner acts as an agent in the field of epidemiology when he warns his clients of the danger of contracting certain infectious diseases from affected animals. In the present emergency, when more and more stress is being placed on animal production and as the density of the animal population intensifies, the incidence of diseases transmissible to man is increased not in direct proportion to, but in a proportion far exceeding the increase in animal population. One need mention only the growing incidence of swine erysipelas and of the various paratyphoid infections of animals to

emphasize the importance of the veterinary practitioner to public health.

From all countries of the world, we hear how science has contributed to industries directly related to the war effort, and to social problems related to wartime conditions. In the United States, it should be the aim of our scientifically trained workers to make use of every research procedure that offers promise of giving any added information necessary for the prevention and control of factors inimical to our national welfare. Prominent among these factors is animal disease, especially its relation to food production and public health. It is extremely important that losses of livestock be more effectively prevented and production increased, to assure that an adequate food supply be provided and the health of the people be maintained.

STATE RESEARCH

No one will, for a minute, question the contributions made specifically and in general, through research, to the welfare of the nation either in peace or in war. However, state research programs have been interrupted to quite an extent because of an insufficient number of trained workers and the need of giving more time and intensive study to problems upon which added information is needed at once. The directors of our agricultural experiment stations have requested, kindly but firmly, that nonessential lines or phases of work already under way, either be put aside temporarily or eliminated entirely. They insist that every effort be made to adjust the work on established research projects so as to attain results that will have immediate application and that new projects be limited to those which lead to the determination of facts and figures of immediate value to present-day conditions and needs.

There is apparently a tendency on the part of some to feel that further organization and new research are the answer to all our problems and that now is the time to more firmly establish the place of scientific research in relation to our national economy and welfare, when, as a matter of fact, for most of our animal-disease problems, immediate and material results may be obtained from making more general use of the things we already know.

In those institutions where a well-organized, worth-while research project is under way, it should, if at all possible, be continued, even though it may take years to complete. Further research on current projects, or new research projects may be advisable. However, either should be on a problem and of a nature that has the prospect of furnishing, at an early date, information which is badly needed and which can be put into practical use immediately.

More information is needed on a number of animal-disease problems that cause serious economic loss to the livestock industry. Some of these diseases have been studied in considerable detail during the last forty years without giving the most desired results. However, during this period, a large amount of information regarding them has been accumulated, put to practical use, and provides fairly effective control. Consequently, further research or new phases of study on these particular diseases may well be relegated to the background during this wartime emergency.

PUT KNOWN FACTS TO WORK

My conception of dealing during wartime with most disease problems is to have the men who know the most about them, through education and experience, give their time and ability to ways and means of putting into practical use the information already available. In every line of endeavor in the livestock world there is a vast amount of information that has much practical value. Our enthusiasm to form new organizations, establish research projects, and issue directives has a tendency to blind us to the realities of the situation. For example, if swine owners would follow the McLean County system of raising pigs, and feed them properly, there would be a surplus of pork with no increase of brood sows. Hog cholera, parasites, malnutrition, and filth are responsible for the major losses in swine. We already know how to deal with these factors.

Our present knowledge of pullorum disease and of nutrition makes it possible to raise chicks in confinement. Therefore, losses from these several causes can be kept at a minimum without the necessity of further research at the present time.

Among the bovine population, the most common cause of loss of dairy calves is faulty nutrition and environment. When the proper amounts of vitamins A and D are supplied and the surroundings are kept

clean, losses will be materially reduced. High breeding efficiency can be maintained by the adoption of simple, well-established procedures of breeding hygiene. Without further research much can be accomplished in the control and prevention of mastitis, Bang's disease, and Johne's disease.

Feed, clean pastures, and the proper use of phenothiazine will assure successful sheep production; thus, more wool and pelts will be available for clothing, more mutton and lamb chops for food, and a greater quantity of normal intestines for surgical sutures and sausage casings.

There is a limitless number of things we already know how to do to prevent the loss of domestic animals and keep them healthy and in a high state of production. I appeal to all of you to make full use of the information already available, even to taking some of your own valuable time to demonstrate to and convince the ones who are responsible for the actual steps in application. This is no time to get together and say, "Now, boys, we will start a research project, and finally get the answer." This is no time to say, "I agree with you, but the time is not yet ripe to adopt this as a policy." This is no time to wait on the development of new diagnostic agents and methods, or of a biological product for immunization, no time to talk about immunity to coccidiosis and parasitisms, or about breeding disease-resistant animals; no time to mistake stomach-worm disease of sheep and cattle for intestinal hemorrhagic septicemia; no time to vaccinate cases of starvation and parasitism with mixed-infection vaccine; and, finally, this is no time to think that every time a pig gets sick, it has that new disease, swine erysipelas, and to forget that hog cholera is still the most common, widespread, highly contagious, fatal disease known among the hog population of the United States. We can ever be on the alert for cases or outbreaks of swine erysipelas and deal with the disease without overlooking and in some cases ignoring other equally serious and common causes of losses among swine.

KNOWLEDGE OF NUTRITION BASIC

During our lifetime, there has been more learned in the biological sciences, and more recently in nutrition, than at any period in history. Undoubtedly, further research will bring additional new and valuable information. New knowledge in animal nutrition, particularly of vitamins and trace elements, has helped to explain many instances of unthriftiness and ill health in animals. Until recently, the practitioner has been unable to deal effectively with this particular type of disease.

The veterinarian of today and of the future must know a very great deal about what constitutes adequate and complete nutrition, and must be able to differentiate with a high degree of accuracy between animals sick primarily from faulty nutrition and those sick or dying from other causes. It would be unfair to criticise too severely those who today are trying to find a substitute to take the place of the hays and grains that have long been known to supply full and complete nourishment to our domestic animals. However, at the time when there was in this country a surplus of roughage, grains, and other forage known to be the best for domestic animals, we were spending federal and state money in trying to find out if it wasn't possible to keep animals alive on the cheapest and most indigestible feeds known. To illustrate, I have never become reconciled to the use of cottonseed hulls as roughage for cattle. The desire to make some commercial use of cottonseed hulls is understandable, but some use other than a roughage for cattle should be found for them. During the last few years, I have had an opportunity to hold autopsies on cattle that had been fed on distillery slop, or on white corn, barley, and wheat, and that had had cottonseed hulls and straw as a roughage. Cottonseed hulls, though cheap and easy to secure, are not a good feed for livestock, in my opinion. To balance such feedstuffs with essential elements is quite as expensive and less satisfactory than to have purchased more nutritious kinds of feedstuffs in the first place.

Today, because of the high price of corn, some of the leading livestock authorities in our country have advocated that wheat be used as a corn substitute. They even go so far as to say that it has a feeding value slightly above that of corn. I have had an opportunity of inspecting, at first hand, herds of brood sows and pigs where the sows were being fed on wheat. If anyone

thinks that wheat is a good feed for a brood sow before she farrows and while she is nursing the pigs, and for growing shoats, I suggest that he continue to use it and see what occurs. The losses that result from trying to make use of fibers, hard indigestible roughages, and from substituting wheat for corn (yellow corn) because it is cheaper, will amount to much more than the difference in the cost.

We, as veterinarians, must know a great deal about the composition of hays and grains that are used as animal feed. We must know which are best, and we must also know the symptoms and other evidence usually apparent when the lack of proper nutrition is the cause of sickness or even death of animals. Animals in a low state of nutrition, particularly if they are low in vitamin A, become readily susceptible to bacterial invasion. The livestock owner has come to feel that it would be to his advantage to have vitamins A and D available in a form that could be given with a hypodermic syringe rather than to permit the animals to survive on yellow corn, good alfalfa hay, and sunshine. However, many of the trace elements and vitamins known to be essential to the welfare of the animal body may, under certain circumstances, have to be given in more concentrated form by artificial means. I am not yet ready to believe that special nutritive elements, produced synthetically, either through experimental research or actual test, are wholly as adequate in furnishing proper nutrition to the animal body as the same substances consumed in their native state in the natural feedstuffs.

Butterfat and Other Fats

You and I are interested in dairy cattle and their products. I believe that butter, the unique, edible animal fat, does contain, and will later be shown to contain food elements that cannot be, at least with our present knowledge, incorporated into other kinds of animal fats. Nevertheless, if butter becomes scarce and high in price, it may be advisable and necessary to advocate the incorporation of minimum requirements of vitamins A and D into the processed fat, oleomargarine, in order to make a substitute edible fat available to those who cannot secure or afford the natural fat, butter.

The Changing (?) World

One often hears that the world will never be the same after the present world conflict. One also often hears the expression, "you can't change human nature." In my opinion, the world will be the same in all general and fundamental respects after the war and in the years to come as it was before the war and in the long past. There will, of course, be changes, but these will be largely details and in the multiple number and various types of apparatus and appliances ranging from those of the household to those of the large industrial plants. We should realize that many of the conveniences we have today are the result of necessity rather than for other reasons. Our systems of transportation, city water supply, storm and sanitary sewers, central heating plants, paved streets, boards of health, food inspection, quarantine regulations, street lights, police forces, fire departments, and the like are all modern developments resulting largely from the necessity of maintaining health, preventing serious epidemics, and providing food for the many people residing in a given area. So, if after this war is over, there will be many changes, some of them will affect the veterinary profession, but there will still be need for veterinarians; and the veterinarian will continue to deal with animal-disease problems since their work concerns the welfare of mankind.

In substance, I have already stated that the world in general will be the same for a long time to come. However, I do want to express a few more ideas along this train of thought. I am proud and happy over past successes and accomplishments of the veterinary profession. One has only to read the history of any line of endeavor to realize that the modifications in methods and procedures which constitute progress are necessary and advisable. It is not always possible to know in advance exactly what changes should be made, nor how to make them. Nevertheless, it is never advisable to wait until grave problems are forced upon us, before having prepared to deal with them effectively. As in other lines of endeavor, we are, perhaps, too reluctant to discuss frankly and openly the necessity for adjustments, even when the need is apparent. Rather, we permit harmful situations to drag along and later learn that

forehanded action would have been the better policy.

It is not necessary to change human nature to make progress. The incentive for progress probably came originally from the instinct to survive, and if we, as veterinarians, are to survive as a profession, we must make progress. Progress also comes from ambition, from the desire for security, comforts, and all the good things that the human being has come to appreciate. I like to feel that progress is a part of the desire to do the right thing at the right time, for both yourself and the other fellow, and do it well; and that it is an indispensable part of the nature of every normal person.

We have outlived the usefulness of some of the slogans that have served us so well in the past, and there is no good reason to feel that the same old thing under a new name is necessarily detrimental. Undoubtedly, in many instances where there is need for a change of heart, even though the same old machinery is used, there are other instances where it would be well to have new machinery without necessarily a change of heart. Perhaps what we need to remember most of all is that there should always be intelligent coöperation.

COMMITTEES

Some time in the near future, we shall start, and, I am sure, accomplish something really worth while on vital statistics of domestic animals. I shall continue to be interested in vital statistics and work for the development of a system even if not an officer of the Association or a member of a committee.

I had rather expected that the Committee on Rabies would have reiterated in no uncertain terms the procedures we know how to follow and should follow to put this disease under more effective control. This is no time to wait for some other organization to take action even if this other organization is known as the National Committee on Rabies. Perhaps, I am unduly concerned about rabies because of the prevalence of the disease in Kentucky during the past year. In Kentucky, there has been, during 1942 and 1943 to date, an unusually large number of dog brains and also brains of other animals examined for rabies. Altogether, several hundred cases were treated and during the last eighteen months, 7 persons have died from rabies. Rabies may be more prevalent in Kentucky than in other states. However, reports indicate that the disease is a serious problem in many parts of the country.

There are a number of committees composed of AVMA members who have been appointed to work with various agencies of the government on wartime problems. The most important of these are the Committee on Veterinary Medicine of the Procurement and Assignment Service and the Committee on Animal Health of the National Research Council. There are also the National Poultry Advisory Council and the Pet Animal Industry Committee of the War Food Administration. These and the other national organizations for which the veterinary profession has a responsibility are all well known to you. There have been published in the JOURNAL many notes and articles about the Procurement and Assignment Service of the Wartime Manpower Service and others. The veterinary profession is well represented in national affairs through these committees. They are doing everything possible to make sure that the veterinary profession has the fullest opportunity to render every service to the country that it is capable of rendering and, in addition, look after the best interests of the veterinarian in his relation to the livestock industry.

As president of the AVMA, and privately, I want to express my thanks and full appreciation to the members of the standing and special committees for the most creditable work that they have done. The standing committtees have largely a holdover membership; therefore, a majority of the members are familiar with the work coming under their jurisdiction. The members of the new special committees have performed a most worth-while service. I hope that these committees will be continued and that the work they have so creditably started will be further extended. The committees this year deserve, and are entitled to, special commendation when it is realized that the chairmen and every member have had many added demands on their time in connection with their regular duties under this wartime emergency.

To the executive officers of the Associa-

tion, I am most grateful for the coöperation and assistance that they have given me during the past year. Our executive secretary, Dr. John G. Hardenbergh, has met kindly and completely every request for assistance and information, has worked hard, and is doing a wonderfully constructive work for the Association. I am convinced that Dr. Charles W. Bower, who follows me as president, is prepared to give more time and thought to the duties of the office of president than I have. I know he has well in mind the many problems that confront the veterinary profession and will be untiring in attempting to find a satisfactory solution. Finally, I want to pay my respects to Dr. L. A. Merillat. He is the dean of the profession in the United States. I wish to thank him for the great help that he has given me during the past year. He is a great editor, and, even at his age, he is younger and has a more fertile mind than most of us.

Deep in the Heart of New Zealand

You may become a guest of New Zealand, stepping-stone on the way from Tokio to Melbourne and return. New Zealand has a population of 1,641,000 and an area of 103,043 square miles. It is "Britain's Dairy Farm," comparable to our Wisconsin, abounding in milk, butter, cheese, beef, and mutton. Politically, here is a land of real democracy devoid of class distinction. No one is poor and no one is very rich. Less than 1 per cent of its people have an income over $10,000. Everybody works; few families have a maid. It's a country of "handy" men and women. The New Zealander can build a house, cook a meal, darn socks, fell a tree, or break a horse. A guest may help her hostess wash the dishes.

New Zealand was settled by the Maoris 150 years before Columbus came to America, and they successfully fought off the whites until 1870 when given full citizenship and the equal rights they now enjoy. (The American Indian was denied citizenship until 1924.) The vanishing Maoris are represented in the cabinet, legislative body and the army. Ethnologists pronounce them the finest physical specimens of the human race and regard them as first cousins of the Hawaiians. American troops are welcomed to New Zealand with their ditty (translated):

Welcome, welcome, fighting men of the warrior god Tu,
With minds as one, let us defeat the enemy forever.

Under this slogan, the remnants of this race are fighting with Britain, America, and China to pound sense into the Japs and their atrocious allies of Berlin and Rome. World War II has made New Zealand important to the freedom that its people are helping us to preserve.

The climate is similar to that of Oregon, and their nearness to us in spirit is shown by the American magazines they read, the slang they use, the games they play, and the welcome accorded to our troops. Nowhere is the good neighbor policy more appreciated than in these far-away islands.

Veterinarian Has Big Job

Some folks said that when the tractor displaced the horse it would be the end of the veterinary profession. They were far from the truth. The veterinarian's job today is bigger than it ever was. It is not only vital to the welfare of the country, but it requires a man with a much greater degree of skill than the old "horse doctor."

A great animal nutrition conference in Indiana, attended by several hundred veterinarians, brought out the close relationship between animal feeding and health. Time was when a veterinarian felt it was small business for him to talk about rations. Now he is becoming an authority in this field, for he knows that symptoms of malnutrition are often confused with symptoms of infection. Today, instead of something written in Latin out of the Pharmacopoeia (that a 50-cent word for a Vet book), he may prescribe a vitamin supplement that will do the trick. And when he does, he's worth his fee, more than ever, for being up-to-date.—*The Prairie Farmer, July 20, 1943.*

Immitigable, a strong but little-used word found in Hawthorne's *House of the Seven Gables,* is what Hitler thinks he is but isn't, and what Mussolini thought he was but wasn't.

Production of Nephrosclerosis in the Fowl by Sodium Chloride

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IN THE FOWL, a spontaneous disease resembling Bright's disease of man has been known for some time under such names as: pullet disease, blue comb disease, contagious indigestion, cholera-like disease, summer disease, housing disease, unknown disease, X or XX disease etc. It has been the subject of several systematic investigations,[1-4] but up to the present time, it has not been possible to elucidate its etiology. The fact that the condition usually appears simultaneously in a large number of the birds in one flock has persistently provoked the thought that it must be of an infectious nature. However, all efforts to transfer the condition from one bird to another by inoculation, or to demonstrate the causative microbial agent, have been unsuccessful. Quite apart from the theoretical interest attached to it, the disease deserves attention because it is not uncommon, especially in the northeastern parts of the United States and in Canada, and because it is fatal in the great majority of cases.

The author became interested in this condition in connection with experimental work on the pharmacology of corticoid hormones, which led to the discovery that, in the chick, overdosage with desoxycorticosterone acetate elicits nephrosclerosis, cardiovascular changes, water retention, and diarrhea, that is to say, symptoms similar to those of avian Bright's disease.[5] Shortly afterward, it was found that this action of the corticoid hormone is especially readily obtained in birds given 0.3 per cent NaCl instead of drinking water. Such slightly salted water greatly increases their sensitivity to the toxic actions of desoxycorticosterone acetate although it causes in itself no renal lesions.[6] These observations led to the concept that the corticoid hormone may act merely by sensitizing the body to the toxic actions of sodium chloride and that if sufficient amounts of the latter were given, the salt alone would suffice to provoke the disease. The experiments to be described in this communication show the validity of this assumption.

From the Department of Anatomy, McGill University, Montreal.

EXPERIMENTAL

In the first experimental series, 12, 2-day-old, Barred Rock chicks, weighing 33 to 38 Gm., were given 2 per cent NaCl *ad libitum*, instead of drinking water. Their food consisted of Purina Chick Startena, a food preparation (sold by the Ralston Purina Company, Ltd., of Montreal) which, according to the firm, contains about 18 per cent protein, 4 per cent fat, and 7 per cent crude fiber. The birds willingly took large quantities of the salted water, but within three days all of them died with obvious signs of diarrhea, generalized tissue edema, and water accumulation in the large serous cavities of the body.

In a second experiment, 12, 19-day-old Barred Rock chicks, weighing 75 to 90 Gm., were fed on the same diet, but 0.9 per cent NaCl was substituted for the drinking water in the hope that, by decreasing the concentration of the salt and using somewhat older experimental animals, the disease would take a more chronic course. This proved to be the case. Three of the chicks died within the first five days, but many of the others survived up to twenty days. During the course of this experiment, most of the birds developed clinical symptoms of Bright's disease and some died, while others were sacrificed in order to obtain fresh tissues for microscopical studies. The most striking clinical features of the condition may be summarized as follows. During the first ten days, that is, during the acute stage of the disease, the birds developed marked diarrhea and, probably because the salt water made them thirsty, the crop was almost continuously filled with fluid. Many of the birds showed signs of a muscular weakness and were unable to stand erect on their feet. The respiration was gasping, and if the chicks were forced to run, acute cardiac decompensation and dyspnea sometimes developed. After sudden muscular exertion, birds which appeared to be in com-

paratively good health suddenly collapsed and died. Autopsy during this stage revealed cardiac dilatation and some edema of the heart, but comparatively little or no actual hypertrophy of its muscle fibers. The pericardium was greatly distended with a colorless or light yellow fluid. In two instances, hemopericardium developed. There was also a great deal of ascites which, in some cases, enormously distended the abdominal cavity. Likewise, large amounts of fluid were seen in the tissues throughout the body, especially in the loose connective tissue around the upper thoracic and lower cervical region. The kidneys were large, edematous, and somewhat pale. The surface was smooth, and in this stage, they resembled the large white kidney of human pathology. Histologically, a marked, cloudy swelling of the tubular cells and an increase in the height of the epithelium throughout the nephron, particularly in the proximal and distal convoluted tubules, were observed. Many of the epithelial cells were in the process of desquamation and disintegration. Cellular and, even more frequently, hyaline casts were noticeable in many of the tubular lumens. Transudation of fluid was particularly obvious around the adventia of the blood vessels. The glomeruli showed the most characteristic changes, inasmuch as their total size was far above normal due to hyalinization of the capillary walls and marked proliferation of epithelioid cells in and around the capsule of the renal corpuscles. Thus, epithelial crescents were formed, which resembled in every respect those seen in the nephrosclerotic kidney of man (*See*, fig. 1 and 2). Some enlargement and edema of the liver and often small petechial hemorrhages were observed throughout the intestinal tract. The gonads were gigantically enlarged in some cases, but histological examination indicated that, with the ovary, this increase in size was due merely to stroma edema, although occasionally to water accumulation in degenerated Graafian follicles and, with the testis, to distention of the seminiferous tubules by fluid.

Between the tenth and the twentieth day of treatment, the edema tendency gradually disappeared, and the birds entered into the second or chronic stage of the disease. Even at this time, there might still be some water accumulation in the pericardium, but most of the other tissues appeared to have lost their water affinity. The heart might still be dilated, but in addition to this, signs of cardiac hypertrophy became more and more evident. The tubular changes in the kidneys were somewhat less pronounced than in the acute stage, and the stroma edema had practically disappeared, but hyaline casts were still of common occurrence and the glomerular changes became increasingly more pronounced with increasing length of treatment. The generalized glomerular sclerosis was accompanied by changes in the medium-sized arteries and veins, inasmuch as during this stage, the vessel walls became thicker as the condition progressed.

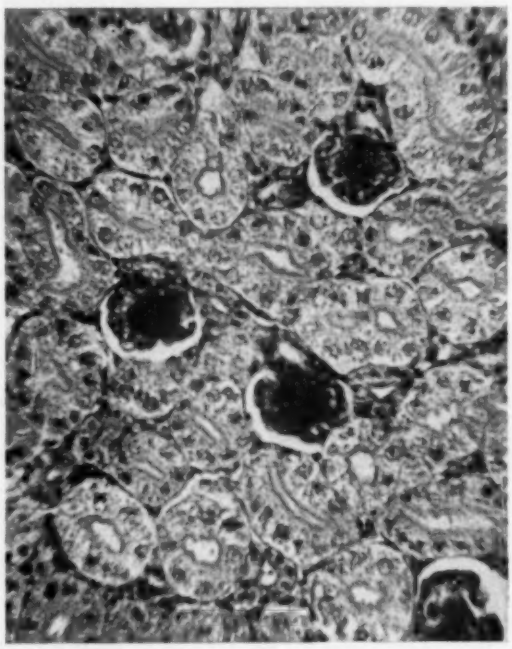

Fig. 1—Section through kidney of normal, untreated chick.

Up to the present, we have not as yet attempted to produce a still more chronic sodium chloride intoxication. However, judged by the evidence derived from this experiment, two distinct stages may be recognized in the course of the intoxication. In the initial or edematous stage, the kidney is large, pale, and, histologically, shows changes especially in the tubular parts of the nephron. In the second or chronic stage, the edema tendency gradually disappears, there is a comparative decrease in renal size, and the increasing development of nephrosclerotic changes renders the surface of the

kidney highly irregular, thus imitating the secondary contracted kidney of human pathology.

It was rather surprising to note that a physiological saline solution could exert such pronounced toxic effects in the chick. In order to determine the minimum dose of salt necessary to cause pathological lesions, we performed a third experiment on 12, 4-week-old Barred Rock chicks, weighing 110 to 140 Gm., who received 0.3 per cent NaCl instead of drinking water. Their food was the same as that used in the previous series. These birds were observed for a period of two weeks, and neither clinically nor pathologically was it possible to detect any abnormalities comparable to those elicited by the more concentrated salt solutions. The fact that such weak NaCl solutions are not toxic, even for younger chicks, is also shown by our previous observations.[6]

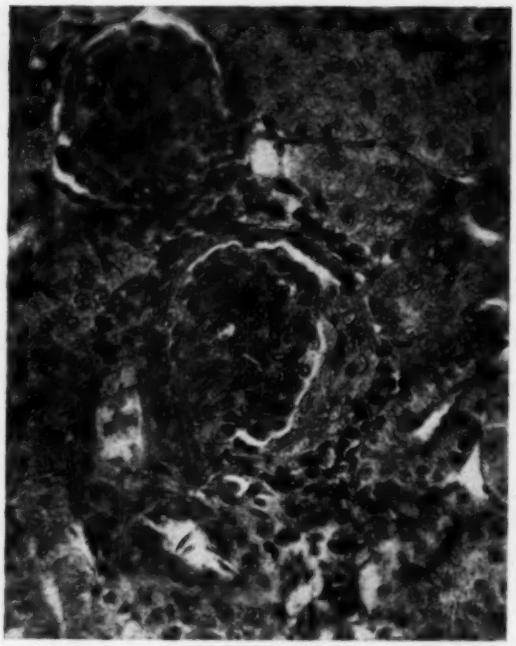

Fig. 2—Section through kidney of chick following six days treatment with 0.9 per cent NaCl solution. Age of animal and magnification of slide same as in figure 1. Note marked enlargement of glomerular tuft and proliferation of epithelioid cells in capsule forming so-called epithelial crescents. The tubular cells are hypertrophic.

DISCUSSION

The experiments reported in this communication indicate that comparatively weak NaCl solutions, such as physiological (0.9%) sodium chloride, are highly toxic for chicks, inasmuch as they elicit a syndrome characterized by nephrosclerosis and disturbances in water metabolism. In the fowl, as in human pathology, an acute, edematous, nephrosis-like stage—in which the kidneys are large and pale and there is marked tendency toward edema formation—often precedes the chronic condition of nephrosclerotic secondary contracted kidney. The great sensitivity of the fowl to NaCl is surprising, in view of the fact that mammals are comparatively resistant to salt overdosage. The rat, dog, and monkey do not appear to suffer noticeably when given 1 per cent or even 2 per cent NaCl solutions instead of drinking water,[7] but whatever the cause of this hyper-sensitivity might be, the fowl represents an ideal test object for the study of experimental nephrosclerosis.

In addition to this theoretical interest, it

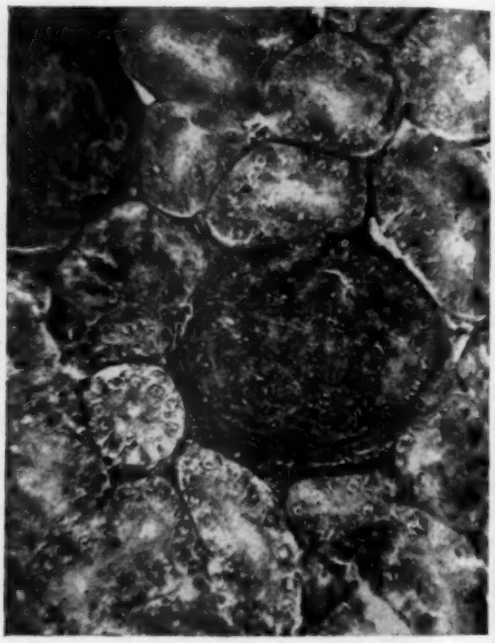

Fig. 3—Section through kidney of a chick following twenty days treatment with 0.9 per cent NaCl solution. Magnification same as figures 1 and 2. Note dense fibrosis of the enlarged glomerulus.

is important to know, from the practical point of view, that comparatively low doses of NaCl added to the drinking water of fowl may prove highly damaging. Because of the striking similarity between the spontaneously occurring avian Bright's disease, or blue comb disease, and the experimentally produced condition described in this paper, it appears highly probable that the spontaneous disease is, at least in a large number of cases, also due to NaCl intoxication. Addition of table salt is often recommended by poultrymen—with more or less justification—for the treatment of a variety of poultry diseases. In this connection, the toxicity of NaCl for the fowl will have to be kept in mind in the future. A case of mass poisoning of fowl by NaCl given for "medicinal reasons" has been described by Heinz and Haas.[8] In this case, the diet contained the enormous amount of 63 per cent NaCl, and it is hardly surprising that most of the birds died within a very short time. The intoxication was apparently so acute that neither water retention nor renal changes were noted. Such unusual amounts of NaCl are, of course, only rarely given, and even cases of avian Bright's disease due to small excesses in NaCl consumption are probably not a major problem of avian pathology. However, the fact that birds are unusually sensitive to this common ingredient of various diets cannot fail to be of importance, inasmuch as the NaCl intake must greatly influence the general development and the response of the fowl to diseases and various environmental factors. It is with this in mind that the author wished to call the attention of those interested in poultry problems to this peculiar sensitivity of the fowl to common table salt.

SUMMARY

Experiments on Barred Rock chicks indicate that the fowl is extremely sensitive to the presence of comparatively small doses of NaCl in the drinking water: 0.9 per cent NaCl, which is quite innocuous to mammals, proves extremely toxic for the fowl. Water retention and marked renal changes resembling Bright's disease develop under its influence in these birds. There is a striking similarity between the spontaneous blue comb disease or avian Bright's disease and the experimental NaCl intoxication. It is probable that this spontaneous disease of the fowl is also due to accidental NaCl intoxication. Should this assumption prove correct, it would explain why the disease usually affects most members of a flock simultaneously and yet could never be proved to be of infectious origin. The maintenance of a normal NaCl intake is probably more important for birds than for mammals. Hence, it is highly probable that the avian subject is much more dependent on a balanced NaCl intake than the mammal.

ACKNOWLEDGMENTS

The expenses of this investigation were defrayed through a grant received from the DesBergers-Bismol Laboratories of Montreal. The author is especially indebted to Dr. C. H. Weaver of the Canadian Department of Agriculture, who called his attention to spontaneous avian Bright's disease, and to Dr. S. S. Munro of the same department for supplying the chicks used for these experiments.

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1882

Eighteen eighty-two is a red letter year in the advance of bacteriology. Koch discovered *Mycobacterium tuberculosis*, Loeffler, *Malleomyces mallei*, Pasteur, the prophylactic treatment of rabies, and the teachings of Lister began to improve intra-abdominal surgery. The first cholecystectomy was performed in 1882.

Treatment of Infectious Coryza in Chickens With Sulfathiazole

C. M. HAMILTON, D.V.M.

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DURING THE FIRST part of February, 1942, the writer had occasion to observe an outbreak of infectious coryza in a valuable breeding flock of Single Comb White Leghorns. The flock consisted of 2,500 females and 175 males. Approximately, 5 per cent of the females and 20 per cent of the males were affected. In December, 1941, the chickens had been treated by the owner with a coryza bacterin. When first observed, a number of the visibly affected birds had been removed from the flock and placed in individual cages.

The symptoms varied in different birds from a slight to a copious nasal discharge and moderate to extensive swelling of the tissues around the eyes. In the severely affected birds, there was a thick, sticky nasal discharge with the formation of yellowish crusts around the nares and over the beak. The eyes in some birds showed an inflammation of the membrane and a foamy lacrimation. The sinuses below the eyes did not appear to be affected as much as were the tissues around the eyes. This edema caused one or both eyes to be completely closed in a few birds. In severe advanced cases, particularly in the males, the birds were observed to be very depressed.

TABLE I—Results from Individual Treatment of Chickens with 1, 2, and 5 Gm. of Sulfathiazole

Bird No.	Sex	Total Amount Given	Amount and Time Given	Symptoms before Treatment	Symptoms after Treatment
1	F	1.0 Gm.	0.5 Gm. at 6:00 p.m. 0.5 Gm. at 8:00 a.m.	Medium nasal discharge Severe swelling around left eye	No change
2	F	Same as above	Same as above	Medium nasal discharge Severe swelling around both eyes	No change
3	F	2.0 Gm.	1.0 Gm. at 6:00 p.m. 1.0 Gm. at 8:00 a.m.	Slight nasal discharge Slight swelling around both eyes	Slight nasal discharge No swelling
4	F	Same as above	Same as above	Medium nasal discharge Severe swelling around both eyes	No change
5	M	5.0 Gm.	1.0 Gm. at 9:00 a.m. 1.0 Gm. at 6:00 p.m. Each day for 2 days and 1.0 Gm. at 9:00 a.m. on the third day	Copious nasal discharge Severe swelling around both eyes. Depressed	Medium nasal discharge Medium swelling around both eyes Bird eating
6	F	Same as above	Same as above	Medium nasal discharge Severe swelling around right eye	Slight nasal discharge No swelling
19	F	Control—no treatment		Medium nasal discharge Medium swelling around both eyes	No change
20	F	Control—no treatment		Medium nasal discharge Medium swelling around left eye	No change

For several years, infectious coryza had caused considerable economic loss in this breeding plant due to the inability of affected males to mate or to lowered egg production of diseased hens. Depopulation

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Presented before the Section on Poultry at the seventy-ninth annual meeting of the American Veterinary Medical Association, Chicago, Aug. 24-27, 1942.

of the poultry plant or isolation of the pullets from other birds on the farm would help to prevent the appearance of infectious coryza. However, on a breeding farm depopulation cannot be undertaken and it is not always practical to keep different age groups segregated. Treatment of affected birds has not been satisfactory. The use of medicinal sprays, inhalants, or other external or internal medications have proved of little or no value.

and symptoms recorded. Three days after treatment was discontinued the birds were again observed for clinical symptoms. After this period, all observations were made by the owner. The effects of the individual treatments using various amounts of sulfathiazole, ranging from 1 Gm. to a total of 7 Gm. per bird, are shown in tables 1 and 2. The effect of feeding sulfathiazole in the mash to chickens affected with coryza is given in table 3.

TABLE 2—Results from Individual Treatment of Chickens with 6 and 7 Gm. of Sulfathiazole

Bird No.	Sex	Total Amount Given	Amount and Time Given	Symptoms before Treatment	Symptoms after Treatment
7	F	6.0 Gm.	1.0 Gm. at 6:00 p.m. 1.0 Gm. at 8:00 a.m. Each day for 3 days	Medium nasal discharge Slight swelling around both eyes	Trace of a nasal discharge No swelling
8	F	Same as above	Same as above	Medium nasal discharge Slight swelling around right eye	Trace of a nasal discharge No swelling
9	M	7.0 Gm.	1.5 Gm. at 9:00 a.m. 0.5 Gm. at 1:00 p.m. 1.5 Gm. at 6:00 p.m. Each day for 2 days	Copious nasal discharge Sticky exudate in eyes Very depressed	Slight nasal discharge Very depressed Emaciated
10	M	Same as above	Same as above	Medium nasal discharge Sticky exudate right eye Slightly depressed	No symptoms (Recovered)
11	M	Same as above	Same as above	Slight nasal discharge Slight swelling around right eye	No symptoms (Recovered)
12	M	Same as above	Same as above	Copious nasal discharge Very depressed	Dead

The work of Delaplane and Stuart[1] showed sulfathiazole to be of value in preventing the development of coryza in adult cockerels exposed to inoculations of the virulent organism of *Hemophilus gallinarum* and, that when given to affected chickens, it hastened their recovery. Due to the high cost of sulfathiazole, flock treatment could not be instigated. However, the individual housing of a considerable number of affected birds made an ideal set-up for their treatment. For individual treatment, 0.5-Gm. tablets of sulfathiazole were given *per os*. When fed in the mash, the powdered form of the drug was thoroughly mixed with laying mash and fed *ad libitum*. Before treatment, each chicken was examined

[1]Delaplane, J. P. and Stuart, H. O.: The Chemotherapeutic Value of Sulfathiazole in Preventing and Treating Infectious Coryza (*Hemophilus gallinarum* Infection) in Chickens. J.A.V.M.A., *94*, (1941): 41-43.

Discussion and Summary

Clinical data obtained from the use of sulfathiazole in treating chickens suffering from a field case of infectious coryza showed this drug to be of value. Due to the high cost of the sulfathiazole, compared to the economic value of chickens, the use of this product at the present time would be limited to treatment of valuable breeding birds, particularly males. Total individual doses of sulfathiazole of 1 or 2 Gm. did not alleviate the clinical symptoms. A total of 5 or 6 Gm. per bird, given at the rate of 1 Gm. in the morning and 1 Gm. in the afternoon, resulted in a marked improvement of clinical symptoms. When a total of 7 Gm. per bird was given at the rate of 1.5 Gm. in the morning and afternoon, with 0.5 Gm. at noon, birds not in the advanced stage of the disease made a complete re-

TABLE 3—Results from Treating Chickens with Sulfathiazole in the Mash

BIRD NO.	SEX	AMOUNT AND TIME GIVEN	SYMPTOMS BEFORE TREATMENT	SYMPTOMS AFTER TREATMENT
13	F	Fed mash for 3 days which contained 0.5 Gm. of sulfathiazole for each 30 Gm. of mash	Medium nasal discharge Slight swelling around both eyes	Copious nasal discharge Slight swelling around right eye
14	F	Same as above	Slight nasal discharge Slight swelling around both eyes	Medium nasal discharge Slight swelling around right eye
15	F	Same as above	Slight nasal discharge	Slight nasal discharge
16	M	Fed mash for 3 days containing 1.0 Gm. of sulfathiazole for each 30 Gm. of mash	Copious nasal discharge Medium swelling around left eye	Slight nasal discharge Medium swelling around left eye
17	M	Same as above	Medium nasal discharge Slight swelling around right eye	No symptoms (Recovered)
18	F	Same as above	Copious nasal discharge Depressed	Copious nasal discharge Depressed

covery. Chickens fed a mash for three days that contained 0.5 Gm. of sulfathiazole for each 30 Gm. of mash did not show any improvement. When the drug in the mash was increased to 1 Gm. per 30 Gm. of mash, improvement of clinical symptoms was observed in 2 out of 3 birds treated. In this outbreak of infectious coryza, the males seemed to be more severely affected than the females; consequently, results of their treatment were generally less satisfactory. Schlenker and coworkers[2] found that a peak concentration of the drug in the blood is reached within one and one-half to three hours after oral administration when the birds are on feed. In this outbreak a number of birds were in the advanced stage and would not eat. This necessitated individual dosing that might have been more effective if smaller doses had been given at more frequent intervals. However, it takes considerable persuasion to get a poultryman to give individual treatment more often than twice a day. The feeding of a mash containing 1 Gm. of the drug to 30 Gm. of mash was expensive, but appeared to be a satisfactory method of administration to birds not affected sufficiently to retard their food consumption.

[2]Schlenker, Frank S., Delaplane, John P. and Stuart, H. O.: The Chemotherapy of Infectious Coryza with Sulfathiazole: Correlation Between Feeding Levels and Blood Concentrations. Am. J. Vet. Res., 2, (1941): 443-446.

On the Other Side of the World Lies Australia

If your military duties take you to Australia, you're fortunate, for there you'll meet folks like yourself—pioneers developing the resources of the land, only a step or two (if any) behind our own people. They've welcomed the coming of American troops, but no more warmly than they've welcomed the American as a man; both without affectation. Australia, the United States, and Canada are the world's greatest democracies—three countries that will hurl defiance at Europe-born brutality to the last ditch. There's no defeatism in these three democracies; each has confidence in itself, and that's what counts.

"At the time of the American and French revolutions, this was an empty land," an officer of the Veterinary Corps reminds us, "but, now its great herds of cattle and sheep, and its mines, remind me of my native state (Montana)."

Australia has a population of 7 million. Half of its land is barren and but sparsely occupied, one-third is good grassland, and a fifth, fair-to-good for farming. Being on the other side of the equator, its seasons are opposite to ours. Most of its population is concentrated in the eastern and southeastern portions, and about one-third of the total lives in Sidney and Melbourne. It has a veterinary service that conforms to its needs in education, research, and practice.

The Veterinarian in the War Program of the Meat Industry

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Chicago, Illinois

IT IS WITH mixed feelings of considerable responsibility and apprehension that I attempt to convey to you my interpretation of the rôle of the veterinarian in the war program of the meat industry. Fortunately, we are in complete agreement with regard to our primary objective, the successful completion of our war effort.

The livestock industry has been called upon to supply meat and meat-food products far in excess of any past production. We have been called upon to feed not only our civilian and armed populations, but also the peoples of the United Nations. The meat-packing industry is girding itself for the job.

In referring to the livestock industry and the meat-packing industry, it must be clear that one is so dependent upon the other that separation is impossible, hence it is more fitting to consider both as one industry, with separate branches performing the operations for which they are best adapted. It seems logical at this point to dwell for a moment on a description of the meat-packing industry and the task which must be successfully completed during this war period.

The meat-packing industry is the third largest manufacturing industry in the United States. Of the entire income of agriculture, 29 per cent is derived from meat animals. This amounted to approximately 2 billion dollars in 1941. During this period, there were 71 million cattle, 54 million hogs, and 55 million sheep on the farms throughout the country.

Livestock receipts in 1941 approached record proportions in the history of the meat-packing industry, yet we have a large increase in 1942 and are looking forward to steadily increasing production during 1943. The federally inspected slaughter of all classes of livestock in 1941 and estimates for 1942 are as follows: In cattle, 10,946,000 in 1941, and 11,800,000 in 1942 make an 8 per cent increase over 1941 and a 22 per cent increase over the 1932 to 1941 average. The calf slaughter in 1942 is expected to be 5,800,000, which is a 6 per cent increase over the 1932 to 1941 average. The lamb slaughter in the 1941 to 1942 May-to-April marketing year was 18,522,000, and it is expected that over 19 million will be slaughtered in 1942, a 4 per cent increase in this one year, and a 40 per cent increase over the 1932 to 1941 average. In hogs, the slaughter for the 1940 to 1941 marketing year, October to September, amounted to 48 million head, while in 1941 to 1942, it is expected that the slaughter will be nearly 53 million, or an increase of 10 per cent. In 1942 to 1943, federal inspected slaughter of hogs is now expected to be about 65 million, or about 11 million head more than the previous high record.

We have lived with such an abundance of food for so long that I doubt if the people of the United States really appreciate their good fortune. Even this year, despite the tremendous quantity of meat which will be used by our Army and Navy and sent to our Allies, we will have only a little less meat per capita for civilians in this country than last year when our average per capita consumption was the highest since 1924.

In the first year of operation of our lend-lease program, 1 billion lb. of pork meat and lard were purchased for export for our Allies. This was only the beginning, although it was 12 per cent of our production of federally inspected pork and lard. The lend-lease program for the second year calls for sending much larger quantities to the United Nations. The FSCC has announced that its requirements for the next six months will amount to approximately 30 per cent of all the pork produced under federal inspection and one-half of all the lard.

A good many problems have arisen in filling the needs of our Allies; however, all major problems have been solved. It has involved the development of new methods

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and new products, some of which will prove beneficial to the livestock and meat industry after the war.

The veterinary profession has taken an active part in the solution of many of these problems. Veterinarians conducting inspection work, both for the Veterinary Corps and the Bureau of Animal Industry, are fully aware of the enormous responsibility which is theirs in protecting the health of the consumer and in conserving resources of our food supply.

The number one responsibility of the veterinarian is the protection of the health of the animals which serve as a foundation for this entire program. There is no doubt that this duty will be faithfully performed. Without meaning to detract from any specialized group, considerable emphasis should be given to the realization that the veterinary practitioner is fulfilling the number one obligation of our profession. The welfare, security, and very existence of our nation depend upon control of farm-animal disease; likewise, the successful completion of our war effort is directly dependent upon the production of meat, milk, and eggs. The veterinarian's primary responsibility in wartime, especially, is the duty to contribute to production—production of food and protection of health—on a wartime scale. He alone can make the peculiar contribution incident to his profession. There are no substitutes. Soldiers can be made from farmers, clerks, salesmen, and laborers. The iron and steel that were going into harvesters, vacuum cleaners, and automobiles can be diverted to guns, tanks, and shells. Officers can be trained quickly and executive ability mobilized, redirected, and rechanneled toward the fighting front. These and many other quick adjustments can be made. Veterinarians, however, like physicians, cannot be drilled or trained into their profession on short notice. The nation plagued with modern war, therefore, has fewer veterinarians when the fight is over than when it started. The pool at the time the war is started can scarcely be maintained by new graduates.

In wartime, therefore, our profession must guard against dissipation of its skill and talent. It would appear unwise to employ the veterinarian's proficiency on jobs which could be discharged by persons of less technical and professional skill when there is such a multitude of vital and pressing livestock and meat-production problems unsolved. At this time, the fact stands out that there are not enough of us to devote proper attention to these jobs alone, to say nothing of allowing the talent of the profession to be channeled into positions which can just as well be filled by persons with less training. Every meat animal or carcass lost due to absence of veterinary skill is a contribution toward defeat. With livestock numbers increasing rapidly, additional attention to animal health is incumbent upon and profitable to the producer, who must in turn look to his veterinarian. Never before has there been such a demand for veterinary service in so many diversified fields having to do with human and animal health.

Besides the increase in the number of farm animals, there is another way in which the amount of finished product can be materially increased without additional expense to the producer, processor, or consumer. I refer to the annual loss of approximately 30 million dollars in marketed animals due to injuries, parasites, and disease. This does not include the losses occurring on the farms and ranches throughout the country in death loss, lowered yields, and unprofitable gains.

During the period between the enactment of the federal meat inspection act and the peak of the tuberculosis eradication campaign, the most frequent cause for condemnation of cattle carcasses was generalized tuberculosis. During the year 1935, over 28,000 beef carcasses were condemned for this condition, which amounted to 20 per cent of the total condemnation and 0.221 per cent of the kill. During this same year, the total condemnation of cattle carcasses arriving at market was 1.15 per cent. In the years since 1935, there has been a gratifying decrease in the number of cattle carcasses condemned because of tuberculosis, and a similar decrease in the total condemnation.

During 1939, 1940, and 1941, the number of cattle carcasses condemned for various causes seems to have become stabilized at approximately 0.61 per cent. This indicates that approximately 60,000 head of cattle that are sent to market each year are rejected and that this loss is reflected directly to the livestock and meat industry. A conservative estimate would place this loss at approximately 3 million dollars.

What diseases are responsible for this loss? As was mentioned, tuberculosis was formerly the main offender. However, during the past two or three years, as far as cattle are concerned, tuberculosis ranks sixth in importance. Pneumonia, pyemia and septicemia, emaciation, pericarditis, tumors, and metritis all play an important part.

In addition to losses of entire carcasses, there is also considerable loss due to diseased organs or parts. Nearly 10 per cent of all beef livers are condemned. The percentage of condemnations varies considerably in different localities, running as high as 20 per cent in some areas. The value of a beef liver at the present time is about $2.50. With over a million livers condemned, the loss is approximately 2 1/2 million dollars. It is encouraging to note a general increase of interest in this subject. Several investigators are studying the cause of abscesses which are responsible for approximately one-half of the condemnations, and studies are in progress with regard to two other conditions, namely, telangiectasis and "sawdust" condition. Liver flukes are common in some localities and should receive the attention of local authorities.

Parasites are responsible for huge losses. The warble grub, *Hypoderma lineata*, destroys approximately 5 million dollars worth of livestock property each year and is responsible for an even greater amount of loss to the raiser and feeders through decreased gains. Too often the attitude taken by the producer is that this grubby hide problem belongs only to the leather industry and the meat packer. This is not the case. The producer suffers a greater loss than is generally realized. Since development of the derris or cube wash, which effectively kills cattle grubs and lice, it is surprising that more veterinarians do not avail themselves of this product and render a well worthwhile service to the livestock producer through routine treatment of all clients' cattle.

Internal parasites of cattle have not received the attention from the livestock producer that they should. It was a surprise to me when I was told by one of our casing men that nearly 50 per cent of cattle intestines are so badly parasitized that they are entirely useless for casings. Surely, the old adage "It doesn't pay to feed parasites" applies here.

Considerably more time could be spent discussing losses in cattle. However, to give an overall picture, it is necessary to move along.

The hog producer has been trained, through education and bitter experience, to consider hog cholera as the number one problem. From the standpoint of the well-informed and modern swine breeder, hog cholera can be controlled through the development of several recognized methods of immunization, provided recommendations are followed and competent veterinary service is called to do the job. During recent years, considerable progress has been made in developing hog-cholera vaccines which can be used without danger of leaving reservoirs of infection on the premises and, if used diligently, should result in wider producer acceptance.

Swine erysipelas is also very much in the public mind and is receiving considerable attention from regulatory officials and research institutions. What, then, are the major problems which require additional effort on the part of the swine producer and the veterinarian?

In 1935, when bovine tuberculosis was responsible for the condemnation of 22 cattle carcasses per 10,000 slaughtered, 26,133 hogs were condemned for this condition, or 7.5 carcasses per 10,000 slaughtered. In 1941, when the incidence of bovine tuberculosis in our cattle herds had been reduced to less than 0.5 per cent, the number of condemned beef carcasses was 2.14 per 10,000, a decrease of 89 per cent. However, the number of hog carcasses condemned for tuberculosis was still 3.1 per 10,000, a decrease of only 59 per cent. Last year, in some areas of the United States, 15 per cent of all hogs showed lesions of tuberculosis either in the submaxillary lymph glands or in the viscera.

The loss to the livestock industry from tuberculosis in hogs in 1941 was approximately 1 million dollars. This figure includes 15,317 carcasses condemned, 238,183 heads condemned, and approximately 2 million heads slightly infected, requiring sterilization. It is felt that nearly all of this infection is due to the avian type of the tubercle bacillus. In this connection, it seems logical to add another 12 million dollars to the loss column of the livestock industry due to the losses in poultry because of avian tuberculosis.

As in cattle, pneumonia and pyemia exact a huge loss in marketed hogs.

It is in hogs that the damage due to parasitic invasions impresses one with its seriousness. Lungworms can be found almost universally. Few hogs can be found that are free from ascarids, and the damage produced in the livers of parasite-infected hogs results in the condemnation of nearly 9 per cent of all hog livers. Here is an interesting example of how discoveries in human nutrition influence the livestock producer. Not so very many years ago, hog livers were a "drug on the market." This was before the development of liver extract and the discovery of the vitamin B complex and of the fact that hog livers were the highest known source of this important product. This discovery raised the price of hog livers from approximately 2 to 15 cents per lb., and the formerly unnoticed loss caused by the migration of parasites now amounts to 1 million dollars a year. Intestinal parasites not only rob the hog of needed nutrition and require consumption of approximately 40 per cent more feed to get the same gain as in animals free of parasites, but there is also a marked loss to the meat-packing industry in the production of casings. With the recent discovery of phenothiazine as a much improved anthelmintic, the veterinarian has another weapon which should be widely used in the war against parasites.

The 1942 spring pig crop was approximately 25 per cent larger than the spring pig crop of last year, with prospects for a continued increase in hog production this fall. There is one discouraging factor in this connection since it has been reported that the number of pigs saved per litter this spring averaged 6.31, which is slightly lower than the number saved per litter in the preceding spring. Some of the factors responsible for the losses between birth and weaning are the problems of disease and some are the problems of husbandry. It appears that the veterinarian is in a position to render valuable service toward the correction of both factors. Suggestions with regard to the care of the brood sow, elimination of insanitary conditions, and improvement of careless or unsound practices on the part of the hog producer must be undertaken with considerable diplomacy. This is certainly a problem requiring the united efforts of veterinarians, animal husbandmen, and swine producers.

The sheep producer is faced with many problems. No doubt the largest loss is due to parasites. Lungworms, stomach worms, tapeworms, nodular worms, and coccidiosis all penalize the producer in his feeding operations. These same parasites result in the loss of products in the meat-packing industry. Nearly 15 per cent of all sheep livers are lost because of either tapeworm cysts, the scars produced by the migration of the larvae of the nodular worm, or the presence in the bile duct of the fringed tapeworm, *Thysanosoma actinoides*. In the intestines, the presence of nodules makes the intestine worthless for casings, surgical sutures, or tennis strings.

It has recently been brought to our attention that we are faced with the possible shortage of surgical sutures during this war period, and while the number of sheep slaughtered is at an all-time high, the incidence of nodular disease in these animals decidedly limits the amount of raw material available to the suture manufacturer. Prior to the discovery of phenothiazine, there was no recognized control program with which to attack this problem. However, results of projects inaugurated during the past year on an experimental basis clearly indicate that this parasite can be eliminated by treating the ewes during the winter season before lambing. This procedure limits the exposure of lambs pastured with their mothers, which, in native flocks, appears to be the primary source of infection.

All animals are susceptible to bruises and injury. Thirteen million dollars are wasted each year due to bruising of livestock. Much of this loss is due to lack of education on loss prevention, and the veterinarian is in an exceptionally fine position to do much of the educational work so badly needed.

You may be wondering what these comments in regard to expanding livestock production and the losses from disease have to do with the veterinarian in the war program. It is simply this: Our farms and ranches are producing more livestock than ever before in our history, and it is essential to the war effort that this trend continue. The conditions under which this unprecedented volume of livestock is being produced make them especially susceptible

to the ravages of disease and parasite infections, which not only create financial losses to the individual producers, but detract from the war effort to that extent.

These conditions include inadequate facilities, inexperienced producers who have not been trained in sanitation and disease prevention, the general hazards of disease that are associated with congestion and large numbers, a shortage of farm labor, and a general limitation of supplies of materials, both for feeding and for providing the proper equipment.

All this adds up to the fact that veterinary practitioners have a big job ahead of them in answering routine calls for their services. But, certainly, the practitioner should not feel that his responsibility ends there. Surely, veterinary education doesn't consist entirely of teaching in veterinary colleges or instructions at meetings of this type. Veterinary education must be carried to the livestock producer and to the man on the farm. It is an ideal time for the veterinarian to launch an extensive program of educational work on preventive medicine toward the reduction of losses from diseases and parasite infections. By so doing, he has an opportunity to make an additional contribution to the war effort and, further, to create good will for himself and his profession which will lead to the wider acceptance of his services in the future, thereby paving the way for a gradual reduction in the losses from diseases and parasite infection comparable with the results which have been accomplished in connection with bovine tuberculosis eradication. Success in an effort of this type, spread over the entire United States, would, in my opinion, warrant the adoption of a slogan "The Veterinarians Put the 'V' in Victory."

Edsel Ford's Death

An editorial dated May 31, 1943, clipped from the *Pensacola* (Fla.) *News*, was received from E. M. Nighbert, Cantonment, Fla., prominent retired veterinarian of the BAI, who draws attention to the wide publicity given to undulant fever as the cause of Edsel Ford's death. The clipping is accompanied by a note suggesting that the Committee on Public Relations should refute the rumor, in justice to the dairy industry, since the part played by undulant fever in this untimely death is not supported by the facts of the case. Other reports received, however, pin the blame on gastric ulcer aggravated by an attack of undulant fever.

The editorial uses the unfortunate event as an argument for better municipal dairy inspection and pasteurization. Pensacola has a dairy inspection service, but only one meat inspector, while the county has none. The Navy officers therein located complain that the meat of animals slaughtered outside the city limits is sold uninspected, meaning that the Navy needs a veterinary corps.

A clipping from the same paper, dated May 28, advocates the guarding of livestock health as advocated by President Dimock of the AVMA. This the *News* quotes from the *Wall Street Journal*.

Back in 1777, John Adams, member of the Continental Congress, wrote: "The merchant scolds, the farmer growls, and every one seems wroth that he cannot grind his neighbor."

Back Them Up with War Bonds

Salmonellosis of Calves in Tropical Countries

R. PLATA GUERRERO, V.M.D.

Guayaquil, Ecuador

SINCE 1931, I have made a study of a destructive disease in calves, associated mainly with catarrhal hemorrhagic enteritis, congestion and necrotic foci of the liver, lung lesions, and bacteremia. The first cases observed were studied on dairy farms in the region of Cali and Manizales, Colombia.

A detailed study was made. Blood samples were taken from the sick calves and cultures of organs were made *post mortem*. All disclosed the type of organism classified as *Salmonella enteritidis* Gaertner.[1] Before my first study (1931), I had little knowledge about Salmonella infection as a primary disease of cattle. My only information was that found in the works of Hutyra and Marek,[2] and Frohner and Zwick,[3] which mention paratyphoid infection in calves and quote results of different investigators: Thomassen (1897), Poels (1899), Karsten (1919), Miessner and Kohlstock, and others, who described the disease as a new septicemia, a pseudocolibacillosis, and a paratyphoid affection of calves. Stickdorn found paratyphoid organisms in 50 out of 170 cases of calf pneumonia, Schermer and Erlick demonstrated Gaertner bacilli in an infected herd, and Mohler and Buckley (1902) observed a spontaneous enzoötic among cattle due to bacteria of Gaertner's enteritidis group. Karsten (1919) isolated a microörganism similar to Gaertner's enteritidis bacillus in several cases of calf paratyphoid which he considers as a special form of disease. In these tropical countries (Colombia and Ecuador), the disease occurs in calves as young as 2 to 3 weeks old and up to 4 months old. Outbreaks are frequent during the whole year on dairy farms. The incidence is higher in the rainy season.

The disease may be either acute or chronic. Usually it begins with acute cases lasting from one to six or seven days. Later, some of the cases show improvement and linger several weeks in the chronic stage. Both types may be observed on the same farm. The mortality is high, usually well over 60 per cent.

The symptoms correspond to those of an acute, septicemic, intestinal infection, with involvement of the respiratory system. In the acute form, there is high temperature (106 to 107.5 F.), weakness, anorexia, and a deep depression, standing alone with head down, eyes half closed, roughened coat, congestion of the conjunctiva, photophobia, lacrimation, and salivation. Feces may be normal, or semisolid and tinged with blood. Some cases develop diarrhea. Acute cases usually show symptoms of pulmonary congestion, but if they survive long enough, they exhibit typical symptoms of pneumonia: cough, nasal discharge, dyspnea, and dull areas on percussion.

The chronic cases usually have diarrhea. Emaciation is pronounced. They do not suck, nor drink milk, but will respond to forced feeding. Autopsy in acute cases reveals acute enteritis; congestion of liver, spleen, and lungs; and hemorrhagic edema of the thoracic and intestinal lymph glands. Chronic cases exhibit hepatization of the lungs, well-marked areas of bronchopneumonia, and purulent foci throughout the diseased portion. Necrotic foci are found also in the liver.

A thorough bacteriological examination was made in numerous cases (showing the symptoms and lesions described) in different localities of Colombia and Ecuador. Blood samples were taken from animals showing symptoms of the acute form. Sick calves were slaughtered and heart blood, spleen, liver, and lymph glands cultured immediately after death, under strict aseptic precautions. Bone marrow of dead calves also was cultured. In every case, *S. enteritidis* Gaertner was isolated in pure culture, showing that the infection is of septicemic character.

Cultures of lung tissue disclosed *Pasteurella boviseptica, Bacterium actenium pyogenes, Staphylococcus aureus*, yeasts, and fungi. They are all considered secondary invaders because the disease was reproduced

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in healthy calves of susceptible age inoculated with cultures of *S. enteritidis* isolated from cases.

I stated in my first report on salmonellosis of calves that although there are several predisposing factors which should be considered influential in the development of the disease, *S. enteritidis* is the primary cause.

I have conducted further research on salmonellosis during these years (1935-1941) in different localities of Ecuador, and though more data have been compiled, the fact remains that *S. enteritidis* Gaertner is the most important cause of heavy mortality among calves in these tropical climates.

Careful observation of conditions related to the disease among calves during the first month of life shows the influence of two main factors around which several conditions are grouped, namely:

a) Environment—climate (hot rainy season, dry cooler season), and parasites (ticks, lung and intestinal worms, warbles, screw-worms and mosquitoes).

b) System of calf raising on tropical farms.

I believe conditions grouped around the factor *(a)* are important. The mortality is higher in the warm rainy season. It is almost impossible to raise calves born during that time.

The intestinal parasites *Ascaris vitulorum, Strongyloides vituli,* coccidia, and lungworms *(Dictyocaulus viviparus)* are numerous in this part of Ecuador during the rainy season, as are also warbles *(Dermatobia cyaniventris),* screw-worms and mosquitoes.

Calves are not protected against them, as the prevailing system of housing includes the use of permanent, insanitary corrals, sheds, or pens, which contribute to the weakening influences. Ticks are prevalent throughout the year, but they increase so enormously during the warm part of the dry season, that as soon as calves are born they are inoculated by ticks with the common hematozoa: *Piroplasma bigeminum, Babesiella argentina,* and *Anaplasma marginale.* As is well known, the first two named have a short period of incubation and the second a much longer one. These are undoubtedly other predisposing factors which may assume primary importance in the mortality of calves.

The system of raising calves in the tropics has much to do, also, with the prevalence of disease. Cows are usually low producers of milk. When calves are raised on beef-cattle farms, where they suckle at liberty and run free at pasture, there is little trouble. Healthy, strong calves are raised, even if they are exposed to these climatic conditions and to ticks and other parasites. Their resistance is high. The mortality is only 2 to 3 per cent. But a different picture is found on dairy farms, even in native-bred cattle, which are naturally more resistant than grade cattle. Cows are milked in insanitary corrals or fenced plots where calves are admitted during milking time, early in the morning, after being held in crowded pens during the night, and left to suck their mothers for two hours or less. As cows are low producers, calves raised this way are undernourished and weak. Cows are milked once a day. On dairy farms, where the mortality is high, the causes are mainly salmonellosis, tickborne diseases, worm parasites—some or all of these acting simultaneously.

Calves born in tick areas are naturally resistant to tickborne disease, as is plainly shown by conditions observed on beef-cattle farms where cows are not milked and by the fact that many calves are raised on dairy farms where Salmonella infection is not present or is not apparent. I have examined many blood slides from sick and dead calves affected with Salmonella infection where it was not possible to find tickborne hematozoa. In other cases, blood slides showed the presence of *Ba. argentina,* and some of these calves had previously exhibited symptoms of hemoglobinuria, showing the action of this malignant hematozoa. Cultures of organs in some of these cases were negative for Salmonella.

Salmonella infection may be prevalent on farms which have the most careful and sanitary system of housing and management. I have seen high mortality in calves housed in clean, modern stables with a concrete floor, such as are found in the best type of dairy farm, where calves received a supplementary ration and the best possible care. The stable and other places where calves are kept favor infection by contact with manure.

Undoubtedly, the virulence of the infecting organism is increased through natural passage in calves of susceptible age to such a degree that even strong, healthy calves, well fed and cared for, may contract the

disease when they are placed in contact with infected calves or infected places.

Certainly, manure is the main source of infection, as was shown by the studies of Henning.[4] The habit of licking one another, developed in calves suffering from mineral hunger and deficiency diseases, is, in my opinion, an important factor in spreading the infection. Carrier cows are usually the source of Salmonella infection on farms where the disease is not prevalent. These cows usually lose their offspring from Salmonella infection at successive pregnancies.

Salmonellosis of calves has been studied by several authors in late years. According to Henning,[4] Viljoen and Martinaglia (1926-1928), and Daubney (1927), published reports on the etiology of the disease incriminate *S. enteritidis* as the cause in South and East Africa, respectively. According to Clarenburg[5] in Holland, the disease is frequently caused by *B. enteritidis* Gaertner. Daubney[6] states that in East Africa the organism responsible for the disease is *S. enteritidis* Dublin. Henning,[4] who has made an extensive study of several outbreaks in South Africa, has found *S. enteritidis* Dublin the main offender.

Daubney[7] states that carefully compiled records of the growth of calves on farms where Salmonella infection was absent show that when the infection is introduced there have been fulminating outbreaks with high mortality, quite independent of any reaction to tickborne disease. The usual reaction on these farms to tickborne diseases in calves is failure to make normal gains after recovering.

These facts have been confirmed many times in my experience with Salmonella infection in these tick areas. Calves seldom show more than a slight reaction to tickborne infections in the absence of salmonellosis, but when this disease is present, mortality is high.

After all these years, I find that salmonellosis is the most difficult problem in raising dairy cattle in tropical countries. On account of the weakening factors already described, vaccination against salmonellosis has to be employed together with hygienic measures. Vaccination without hygienic measures gives the farmer a false sense of security. Vaccines prepared with several strains give the best results on account of the presence of the different antigenic factors in them. Immunity against *S. enteritidis* is difficult to obtain. More research is needed along this line.

Curative treatment is not always successful. Small doses of vaccine and intestinal antiseptics give the best response. Sulfanilamide derivatives have been used with encouraging effect.

SUMMARY

The following are the control measures indicated to check the course of the disease on infected farms:

1) Vaccination against *Salmonella enteritidis* infection.
2) Isolation of sick calves.
3) Elimination of carrier cows.
4) Frequent change of corrals and sheds, at least every ten days during outbreaks of the disease.
5) Cleaning udders before feeding.
6) Keeping calves out in pasture as much as possible.
7) Dipping, carried out periodically, to eliminate parasites.
8) Feeding calves with supplementary ration.
9) Separating bulls from cows during the months of heaviest rainfall to eliminate births of calves during this period of highest mortality.

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The Japanese soldiers are issued a remarkably nutritious ration, the OWI announces. It is superior to the civilian diet of the Japanese laboring at home. The diet is described in detail in a release of June 10. It is built up on a profound knowledge of proteins, carbohydrate, and vitamins which the white man can't laugh off.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Treatment of Uterine Prolapse in the Cow

CALVIN F. BENNETT, V.M.D.

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ANY FACTOR that brings about tenesmus, *e. g.*, retained placenta (complete or partial), severe traction on the fetus, or the use of strong antiseptics, is a contributing cause of eversion of the uterus. Other causes are lying or standing with the hind parts lower than the fore parts, on a too sloping floor or ground, or lying with the hips overhanging the gutter. But, probably, the most common cause is traction applied by the weight of that part of the afterbirth which hangs over the pubis, to the anterior part of a horn through the cotyledons to which it remains attached. This traction, with the accompanying tenesmus, starts a telescoping process and, as a fold is created, that in itself becomes an irritant and produces even more straining, false labor, or whatever one may wish to term the expulsive efforts. The more traction applied, and the greater the expulsive efforts, the more the enlarging uterine fold excites the straining until, finally, the horn passes through the cervix and out of the vulva. It usually reaches about to the hocks when completely everted.

In eversion of the uterus of the mature cow, the patient is usually found in the prone position, with or without the placenta partly or completely attached, and enough of the uterus everted to fill one-half to an entire bushel measure.

The treatment begins on the telephone when the call comes in. The dairyman should be instructed (1) to place an attendant in charge who will permit no injury to the organ, (2) to have plenty of clean, warm water ready, and (3) to have at least two strong men to assist.

Probably the most serious complication that may develop after the eversion is injury to the uterus. The dairyman is expected to avoid this by placing someone in charge. The best place for restraining the patient is in a stanchion, with no cows close enough to tread on the organ, and no post, rough wall, partition, nor any irregularity near enough to enable the cow to injure the organ by getting up and down or backing in the stanchion. When releasing neighboring cows, care must be taken that, in turning to leave their stalls, they do not step on the everted organ. Also, the calf should be restrained from running around the stable.

If the cow is loose, in a box stall, or tied, the man in charge should have everything in readiness to put her in a stanchion, provided a favorably located one is available, when and if she gets to her feet. However, if the patient is lying down and content to remain so, she should not be disturbed. In that position, she is not likely to injure the everted organ.

Granted that plenty of help and several pails of clean, warm water are available, provide a strong, large dishpan, preferably one with two good handles, and proceed with the replacement. First, appraise the surroundings and be sure that every minute detail has been considered. If there is no stanchion, tie the animal short in a corner where there is no interference, such as posts, shelves, broken partitions, tied calves, or anything that may hinder free operation when replacement is under way.

If the cow is lying quietly, the attached placenta should be removed without disturbing her. However, if she is standing or restlessly getting up and down, it will be necessary to use caudal anesthesia. If

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standing, the mass should be supported in the dishpan while the placenta is being removed.

ANESTHESIA

After removal of the placenta, if the cow is lying down, station an assistant on each side of the uterus as it is carefully placed in the pan. Then make the cow get up, and as she rises, the assistants will support the entire weight of the organ in the pan as they follow it up. Many times, this manual support of the weight, alone, will cause the animal to stand quite comfortably; but comfortable or not, the next step is an important one: the epidural anesthesia.

The concentration and quantity injected should, perhaps, be altered in each case. It has been my experience that, unless dealing with particularly large or small cows, the 3.5-gr. procaine hydrochloride tablet dissolved in a 10-cc. syringeful of sterile water will be so satisfactory in all cases that the extreme ones may almost be disregarded. The 10-cc. Record syringe will hold about 12.5 cc. if filled to the limit, as I use it for larger animals. In the small ones, a little may be left in the syringe after filling it to the 10-cc. mark. The whole secret of success depends upon producing the proper degree of anesthesia. An overdose which would render the animal unable to stand would be worse than no anesthesia at all.

REPLACEMENT

With the proper anesthesia established, cleanse the organ well. Usually, sufficient time can be taken to do a thorough job, for the animal is apt to chew her cud or eat hay, oblivious to what the operator is doing.

After the organ is cleansed, have the assistants elevate and tip the pan as if pouring the organ back into the cow. Have a third assistant keep the tail out of the way, or tie it with a rope. Be careful that no cotyledons are caught between the edge of the pan and the body of the cow. With the pan in the proper position, manipulation, with or without lubricating powder, should assist the organ to slip back freely into the pelvis. Then follow it into the abdominal cavity with the arm and be certain that all folds in the horn are entirely smoothed out.

Depending on the size of the vulva, 3 or 4 deep sutures of umbilical tape are used to hold the lips loosely in as near the normal approximation as possible. These will be removed by the owner in about forty-eight hours, according to given instructions. In many instances, by the time one is ready to leave, the animal will begin to show more strength in her hind legs and better coördination. The anesthesia will persist so that further straining is unlikely. If straining does occur, it can be controlled by sedatives, an elevated platform for the hind parts, or the proper application of a body rope. In rare cases, a combination of all three methods is needed to overcome the damage resulting from excessive straining.

If the patient cannot be gotten to her feet to proceed as just described, or if she has gone down under an overdose of epidural anesthesia, the hind parts may be elevated by block and tackle applied to the hind legs; but if the animal is too weak to get to her feet before the anesthesia, she is a poor risk with any treatment.

I have attributed sudden deaths following eversion of the uterus to shock and to internal hemorrhage caused by the stretching of the utero-ovarian vessels. Shock and hypocalcemia, combined, is another probable cause. The latter, of course, can be successfully treated if one arrives on the case in time.

I have lost very few cases over a period of years by following this plan.

Tannic acid won favor as a local treatment for extensive burns because its astringent action checks the loss of blood plasma, which in extreme (human) cases may amount to as much as 3 qt. The effect is comparable to rapid blood loss in surgery or accident. The blood bank (blood plasma) has become famous in the emergency of wound and burn treatment because loss of blood volume is more deadly than loss of blood cells, while the normal volume-cell relation is being reëstablished.

The cheapest way to freeze food for preservation is to carry it to an altitude of 15,000 ft. with airplanes. At that altitude, the temperature is lower than that of the coldest of commercial freezers. Thus, according to *Automotive and Aviation Industries*, a postwar use will be found for the wartime bombers.

Extirpation of Branchial Cyst

A 2-year-old, male Boston Terrier was presented several months ago with the following history. He was purchased in September, 1940, when 6 weeks of age. A swelling was first noticed on the neck below the left mandible three months later. It gradually increased in size and had been lanced in January, 1941, and again, three weeks later, when a liquid medicine was dispensed with instructions to inject it into the wound in an attempt to keep the incision open for awhile.

In April of that year, after further attempts to correct the condition by lancing, an operation was performed, with the intent to remove a salivary cyst. This procedure proved futile, and, in May, the dog was taken to another veterinarian, who diagnosed a submaxillary cyst and performed a second operation. By June, the swelling had again recurred, and in addition, an enlargement under the tongue was observed for the first time. The sublingual growth (probably a ranula) was lanced, as was the original neck swelling.

From then until presented at our hospital, the sac had been drained about every ten days. The dog had had choking spells frequently since puppyhood and during the last month had one about every other day. The owner said the dog seemed able to inhale in normal fashion, but could not exhale satisfactorily. This condition was relieved by rubbing the abdominal region and ribs and slowly pumping in air as in artificial respiration.

After hearing the complete history, it was decided to withhold diagnosis for a few days until the dog had been presented at a small animal clinic our local association was scheduled to hold. Those who expressed opinions at that meeting also thought it was merely a submaxillary cyst and that either it should be opened and packed with iodine and gauze, or swabbed with Lugol's solution, or another attempt should be made to extirpate the gland tissue.

The next day, I incised the swelling, from which flowed a watery, clear, mucilaginous substance. After enlarging the incision and exploring the area, which contained a number of large blood vessels, I decided to remove about an inch of excess skin on either side of the incision, pack the wound with gauze saturated in iodine, suture, and leave a drain at the bottom from which to remove the packing in a few days. The drain was kept open about ten days, during which time the same clear liquid had commenced its seeping. The wound was then allowed to close and, in the usual time, we had the same sac back again.

Being now convinced that this was no longer an ordinary case, I took the dog to a physician, a nose and throat specialist, who, after hearing the history, expressed the belief that it might be a branchial cyst such as had occurred a time or two in his experience in human medicine. He referred me to a surgeon who had performed the operation on a young man several months before. The surgeon needed only to hear the history and tap the swelling for the nature of the fluid to confirm the diagnosis absolutely.

In the lateral wall of the anterior part of the foregut, on each side, in the embryo, are four, noncomplete, transverse clefts, corresponding to the gill slits of fish. They are usually referred to as branchial clefts and are formed by outward linear pouchings of the entoderm, and corresponding inward depressions of the ectoderm. Normally, the first cleft remains open and is formed into the Eustachian tube, tympanic membrane, and external auditory canal, while the second, third and fourth clefts unite to form the smooth sides of the neck.

When the sides of either of these latter clefts do not unite and an opening forms in the mucous membrane, (*a*) *a complete branchial fistula*, having a continuous tract, with inner and outer openings, is the result. Or if the sides of a cleft fail to unite, and although the mucous membrane is not perforated, the skin does not cover the cleft, (*b*) *an incomplete external branchial fistula* is formed. Likewise, (*c*) *an incomplete internal branchial fistula*, but with inner openings only, may be formed. A true (*d*) *branchial cyst*, then, is the result of an occlusion of both inner and outer openings.

Branchial cysts most commonly are found on the left side, usually originate from and are the second cleft, and are round, smooth, often fluctuating, deeply situated, and in close apposition to large blood vessels.

In early cases, incision with treatment

From the Magrane Animal Hospital, Mishawaka, Indiana.

by electric cautery or packing with iodine on gauze is sometimes successful, but surgery must be resorted to in the majority of cases.

THE OPERATION

In the case in question, surgery, of course, was imperative. A guarded prognosis was given the owner and the operation performed by the surgeon as follows. Under morphine-nembutal anesthesia and with the usual aseptic procedure, an oblique incision 4 in. in length was made over the sac, retractors applied, and an extended blunt dissection employed to locate the cyst wall in the presence of the excess scar tissue resulting from previous attempts. Owing to the nature and importance of the surrounding structures and the deep dissection necessary, it required one hour to excise the cyst completely. The dissection ended in the tonsillar depression of the pharynx. When I inserted my finger down the dog's throat, just the thinnest wall separated my finger from the surgeon's. After tying off all bleeders, a few catgut stitches were taken in the muscle, sulfathiazole powder was sprinkled in, and a running lock stitch was used to close the incision. A drain was left at the base. The dog ate a big meal the following day, the wound stopped draining in a week, and the stitches were removed in ten days with perfect healing resulting. Recovery was complete and all previous symptoms exhibited by the dog have disappeared.

We have since seen another case like this in almost every detail, but an operation was refused by the owner and the animal was not presented a second time.—*W. G. Magrane, D.V.M., Mishawaka, Indiana.*

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The Duration of Pregnancy

The fact that the Selective Service System distinguishes between men who do and do not have a child or children and maintain a relationship with their homes and provides that such status must have been acquired before Dec. 8, 1941, has raised the question as to the duration of pregnancy, which varies from 280 to 300 days. In order to classify certain registrants, selective boards have had the difficult task of deciding whether a child had been conceived before that date. Should the time be computed from the date of coitus or that of the last menstruation, or the last day of the last menstruation? The difficulty of setting the exact day is apparent. In different countries (England, France, Germany), births have been declared legitimate as early as 180 days after marriage and as late as 331 days after the death of the husband. In the United States, each case is decided on its own merits. Any child born after Sept. 15, 1942, is considered as having been conceived before Dec. 8, 1941, but where the pregnancy is claimed to have lasted over 280 days, the burden of proof rests with the claimant.—*From J.A.M.A., May 8, 1943.*

Tetanus Antitoxin Not Facultative

That using, or failure to use, tetanus antitoxin in the treatment of a tetanogenic wound is not optional with the treating surgeon was stressed in the case of *Pierce vs. Patterson, 123 P. (2nd) 544 (Calif. 1942)*, wherein the Appellate Court granted a new trial to the plaintiff on the ground that the trial judge in his charge to the jury had underestimated the physician's failure to administer tetanus antitoxin to the plaintiff's 10-year-old son treated for a finger wound from which tetanus developed and death ensued. The defendant physician had committed the double error of sheltering the wound against air and failing to use antitoxin. The case was remanded for a new trial on the ground that both errors were not taken into account in the charge to the jury. In effect, in the presence of a wound capable of causing tetanus (as so many wounds are), the use of antitoxin is not optional on the part of the doctor. It's a protection against the development of a fatal disease from a simple injury, to which the unsuspecting patient is entitled from his physician.

The rutabaga, or yellow turnip, is fairly rich in the antiscorbutic vitamin.—*From Nutrition Reviews.*

CLINICAL DATA

When a hen walks like a duck, she is probably suffering from a ruptured or impacted oviduct. She's incurable, but is fit for a stew.

Because weather conditions are not favorable for bumper crops, the big idea is to stretch livestock feed by intelligent balancing and supplementing.

Roughly, soybean contains 17 per cent of high-quality protein and is a good source of vitamin B. Nearly all (80%) of its iron is used up.—*J. Am. Dietet. A., 38, (1942): 385.*

Colostrum milk contains approximately ten times as much vitamin A, three times as much vitamin D and riboflavin, and twice as much ascorbic acid as normal cow's milk. —*From Nutrition Reviews, May, 1943.*

Coprophagy by experimental rats seems to prove that vitamin B is synthesized by the intestinal flora or other factor in the digestive tract. Rats deprived of vitamin B do not become B-deficient if they eat their feces.

"The Coming Part Time Practitioner," a headline in President Dimock's address (*see* page 133), points out what the future veterinary service of the United States will be—must be—if the nation's livestock is to be universally protected against preventable losses from disease.

Detecting cockerels from pullets at an early age is an art possessed only by experts. For the novice, the pointed hackle feathers examined at 5 to 8 weeks of age are the first visual evidence that a chick is a male. The comb of the cockerel is larger. Masculinity of the body shows up later.

The fruit of the wild rose *(Rosa scicularis)* is a rich source of vitamin C.—*From Nutrition Reviews.*

Fluorine is beneficial, not harmful to teeth. Carious teeth have less fluorine than sound teeth, according to an investigation of the U. S. Public Health Service.

As little as 0.9 per cent of table salt (NaCl) in the ration of chickens is extremely toxic, according to studies carried out by Selye of McGill University. (*See*, page 140.)

Plasmodium malariae, mosquito-borne parasite, the cause of widespread disability of soldiers all over the world, was discovered in 1881, but was not known to be transmitted by mosquitoes until the researches of Smith, Kilbourne, and Curtice on the transmission of Texas fever by ticks led to that discovery a few years later.

Although vitamin A is known to be stored up in considerable amount when the intake is abundant, and the stored reserve serves its purpose for weeks and months, the work horse of the Cornbelt must have quite a big reservoir to pack away enough to last all winter on carotene-deficient cornstalks and oats straw.

Hay contaminated with lead sprayed through cracks in painting the barn with a spraying machine caused lead poisoning in feeder calves. There was but three feet of hay in the mow when the painting was done, and this was covered with new hay. Trouble began when the old hay was reached. This accident as a source of lead poisoning is worth keeping in mind.—*W. A. Beard, D.V.M., Greenview, Ill.*

Disturbances in Water and Electrolyte Balance

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DEHYDRATION, a term used with increasing frequency in veterinary literature, denotes a syndrome caused by removal of water from the circulating blood in amounts that greatly exceed the intake. The clinical picture includes loss of weight, decreased elasticity of the skin, dryness of the serous and mucous membranes, sunken eyes, decreased peripheral circulation, impairment of kidney function, and concentration of the blood with respect to the body cells and plasma proteins. The resultant hemoconcentration may alter the physiological mechanism regulating the movement of fluid between the blood and the extravascular tissues, which depends essentially upon normal, semipermeable capillary endothelium. Capillary walls so damaged allow whole plasma to escape, destroying the effective differential between the composition of the blood plasma and the extravascular fluids (Moon, 1941). When these changes occur, the state of shock is present. Water may be actually removed from the body by diuresis, vomiting, and diarrhea, or it may be lost only to the circulating blood by becoming fixed in the tissues, as in traumatic shock or in the inflammatory exudate of a burn or in a severe infection such as canine distemper. Whether water is lost to the body, or drawn from the blood and fixed in other fluid compartments of the body, hemoconcentration results. Dehydration may result either with or without loss of water from the body as a whole. Since water cannot move within the body without carrying electrolytes with it, loss of water by any mechanism results in electrolyte deficit. This deficit is associated with either acidosis or alkalosis, depending on the ratio between the fixed bases and chlorides that have escaped with the water.

SPECIFIC CAUSES OF DEHYDRATION

Vomiting, Intestinal Obstruction.—Vomiting, in such conditions as pyloric stenosis and high intestinal obstruction, rapidly depletes the extracellular fluids. This is readily appreciated when it is considered that the daily combined secretion of saliva and gastric juice amounts to from 1 to over 6 liters, depending upon the species of animal. Because of the usually high chloride content of the gastric juice, there occurs a fall in blood chlorides with a tendency toward alkalosis (Wohl, Burns, and Clark, 1936). In such conditions as nephritis and certain infections, the gastric juice may be neutral or slightly alkaline, under which conditions vomiting causes the loss of bases as well as chlorides, with a resultant acidosis. The vomitus in low intestinal obstruction includes, in addition to saliva and gastric juice, bile, pancreatic juice, and the secretion of the intestinal mucosa above the obstruction. The loss of secretions containing an excess of base over chloride causes a rapid appearance of dehydration and acidosis.

Diarrhea.—The water and electrolyte content of diarrheal stools represents not only the water and electrolytes that may have been ingested, but also, and to a much larger degree, body water that has been secreted in the entire gastrointestinal tract in the form of various digestive juices. Since more sodium than chloride is lost in this condition, acidosis accompanies the state of dehydration.

Fever.—With fever, the amount of water necessary to dissipate the extra body heat may increase considerably above that needed for skin evaporation under basal conditions. In electrolyte balance studies made during artificial fever (in human beings), Keutmann and his associates (1938) showed that in a period of forty-eight hours patients in whom body temperatures up to 40.5 C. (104.9 F.) had been induced lost, through sweating, 7 to 22 per cent of the total estimated amount of sodium and chloride in the extracellular fluids. The ratio of sodium to chloride, as well as the total amounts of these electrolytes lost through the skin, varied in each individual. Com-

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plete replacement of the electrolyte deficit required about three days.

Burns.—Victims of burns, MacCollum (1938) states, almost invariably show some degree of shock immediately following the injury. This initial shock may be due to a reaction from fright, or to an upset of the vasomotor mechanism brought on by painful sensory impulses from the injured area. This initial shock may be transitory or, if the burn is extensive, may progress into a deeper stage or secondary shock, similar in many respects to surgical or traumatic shock. Many theories explain this secondary shock, which usually develops within two to ten hours after the injury. At the present time, the most tenable theory is that of hemoconcentration due to a loss of fluids from the weeping burned surface and also to a shift of fluid from the blood into the intercellular spaces or tissue of the injured area or elsewhere. This shift of fluids follows a chain of events. When tissue cells are injured, as in a burn, the cells lying beneath those killed by the burning agent immediately show an increased permeability of their cell walls (Menkin, 1938). Certain vasodilator substances are then permitted to pass through the cell wall into the intercellular spaces where they cause a dilatation of the vascular elements. The dilated capillaries become more permeable and allow water, electrolytes, and protein to pass into the tissue. Swelling of the tissue results, and fluid oozes from the burned surface. As a result of a loss of fluid, the blood becomes greatly concentrated; the red cell count may increase; and the hemoglobin shows a corresponding increase. This hemoconcentration, together with the dilated blood capillaries, results in lowered blood pressure, impairment of kidney function, and failure to supply adequate amounts of oxygen to the tissues.

Infections.—As in extensive inflammation due to burns or mechanical injury, the severe infections, particularly canine distemper, distemper pneumonia, lobar and bronchopneumonia, and the so-called mixed infections, cause profound disturbances in salt and water balance. The inflammatory process, along with fever, may be sufficiently great to withdraw amounts of water and electrolytes from the circulating fluids large enough to produce a dangerous degree of dehydration (Cecil and Lawrence, 1940). In pneumonia, the large amounts of water and electrolytes drawn into the lung deplete the water and the sodium and chloride content of the circulating blood to critical levels (Atchley and Benedict, 1930; Sunderman, 1931).

Traumatic Shock.—The extensive research on wound shock, initiated during the first World War, led to the conclusion that delays in surgical intervention, cold, exhaustion, anesthesia, and hemorrhage were contributory factors. Observations by Ebbecke (1923), Lewis (1927), Krogh (1929), and Menkin (1938) established the fact that in traumatic or surgical shock, as well as in burns, the release of certain normal constitutents in the injured cells, though not toxic in the usual meaning of that term, along with products of autolysis which are toxic, causes damage to the endothelial cells of the capillaries. This causes blood plasma to escape into the extravascular tissues, reduces blood pressure, and impairs circulation to such an extent that sufficient quantities of oxygen cannot be conveyed to the tissues. Serious hemorrhage produces signs and symptoms like those of shock due to other causes. Analysis of the blood, red blood cell counts, determination of specific gravity, hemoglobin, and blood protein values will distinguish between the effects of hemorrhage and shock due to other causes.

SUMMARY

Loss of fluid from the body by fever, vomiting, or diarrhea, or loss of fluid from the circulating blood by trauma, severe infections, or hemorrhage results in hemoconcentration with impaired circulation and tissue anoxemia. If uncorrected, shock may develop, with death from circulatory collapse. The administration of fluids parenterally has been based on the knowledge secured not only on the basal needs of water and electrolytes for evaporation through the skin and lungs and for urine excretion, but also on the amount and type of fluid necessary to correct derangements of water and electrolyte balance and osmotic pressure of the circulating body fluids that may have been produced by the many conditions mentioned.

The Toxic Principle of Aleurites Fordi Hemsl

Recent publications have shown that the leaves of *Aleurites fordi* Hemsl. (tung tree) are poisonous to cattle.[1, 2] Profuse diarrhea and gastroenteritis characterized these cases. It has been known for a number of years that the meal from the tung nuts, after extraction of the oil, cannot be used as a food for livestock due to its poisonous properties.[3, 4] This paper reports on attempts to isolate the toxic principle, the nature of which has not been established.

Tung leaves were ground in a meat grinder, placed in distilled water, and allowed to stand for approximately two hours. The fluid was strained through a number of thicknesses of cheese cloth, saturated with ammonium sulfate, and, after standing for an hour, was filtered through filter paper. The precipitate was removed from the filter paper, placed in a small amount of distilled water, and dialyzed in a parchment membrane for forty-eight hours.

The extract obtained from 3/4 lb. of fresh tung leaves was administered *per os* to each of 2 mature rabbits. An extremely profuse, watery diarrhea resulted within twenty-four hours and continued for four days, during which time sluggishness, inappetence, and coldness of the ears occurred. The rabbits showed considerable pain upon pressure over the abdominal region. They recovered slowly over a period of five days after cessation of the diarrhea.

The extract from 3/4 lb. of tung leaves was administered *per os* to each of 2 adult chickens. Within twenty-four hours, a brownish diarrhea developed; in forty-eight hours, the droppings became scanty and greenish in color. The latter continued for three days, during which the birds showed droopiness and inappetence; considerable emaciation occurred. The birds appeared to be improved slightly on the sixth day. One bird, killed at this time, showed microscopic lesions comparable to those of 4 birds experimentally fed tung leaves. The remaining bird recovered in about five days.

The question immediately arises as to why the extract failed to kill these birds when an equal amount of tung leaves, from which the extract was prepared, readily induced illness followed by death. When leaves are administered, the effect of the toxic principle extends over a much longer period. Also, as is usual in most extraction procedures, the toxic principle rarely is extracted with 100 per cent efficiency.

The toxic principle was destroyed by heating the extract for one hour at 15 lb. pressure in an autoclave. This observation corresponds to the findings of Erickson and Brown,[5] who showed that heating with steam at 230 F. for two hours rendered oil-free tung meal nontoxic for rats. Three drops of the extract laked 8 cc. of both chicken and rabbit citrated blood. The toxicity of the extract was largely destroyed by heating for one hour with 5 per cent hydrochloric acid, and then it was found to reduce Fehling's solution, indicating that at least one component of the toxic principle is a sugar.

These data indicate that the toxic principle of *A. fordi* is a saponin. The viscous, tenaceous sap, which oozes from the cut leafstem and is abundant in the green hull of the fruit, is rich in this principle. Evidence based upon microscopic lesions in experimentally fed chickens indicates that the toxic principle in tung leaves is similar to that occurring in the tung nut.—*M. W. Emmel, D.V.M., Gainesville, Florida.*

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[1]Emmel, M. W., Sanders, D. A., and Swanson, L. E.: The Toxicity of Foliage of *Aleurites fordi* for Cattle. J. A.V.M.A., *101*, (1942): 136.

[2]Sanders, D. A., Emmel, M. W., and Swanson, L. E.: Tung Tree (*Aleurites fordi* Hemsl.) Foliage Poisoning of Cattle. Florida Agr. Exp. Sta., Bul. 376, (1942).

[3]Goddin, W.: The Feeding Value of Tung-Seed Meal. Bul. Imp. Inst. *31*, (1933): 3.

[4]Newell, W.: Preliminary Report on Experiments with the Tung Oil Tree in Florida. Florida Agr. Exp. Sta., Bul. 171, (1924).

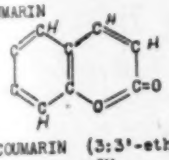
[5]Erickson, J. L. E., and Brown, J. H., Jr.: A Study of the Toxic Properties of Tung Nuts. J. Pharm. and Exp. Therap., *74*, (1942): 114.

When an adequate amount of any vitamin fails to reach the tissues, whether from defective diet or poor absorption and utilization, the stores in the tissues gradually decrease, the chemical system involved becomes defective, function is hindered, and tissue changes occur. The tissue change is one of the means of detecting deficiency disease, its response to treatment, and the outcome. Knowledge of pathology is, therefore, important to an understanding of this type of disease.—*From Nutrition Reviews, May, 1943.*

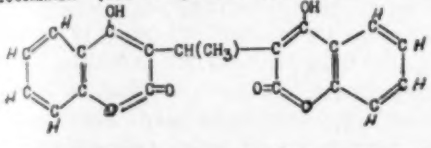
Coumarin and Dicoumarin

Because dicoumarin, the extractive of spoiled sweetclover hay, is from 500 to 1,000 times more anticoagulant than coumarin, the flavoring extractive of normal clovers, the chemistry of these two agents is, at least, of academic interest. For having once used one of these names when the other was meant, we've been charged with having made a grave *faux pas*. For this, we received two benzene-ring-types of chemical formulas which differentiate the one from the other and two days later (from the same source), another twain of formulas showing that the first two were not exactly correct. Here are the corrected formulas:

COUMARIN



DICOUMARIN (3:3'-ethylidene bis(4 hydroxy coumarin)



The differential dynamics of these two derivatives of clovers was described by Jorgen Lehmann in the April 10 issue of *The Lancet*, our correspondent points out. To this should be added that dicoumarin is of interest in veterinary medicine mainly as an etiological factor of a grave disease—sweetclover poisoning. It is not apt to be used routinely as an anticoagulant.

Wild Mustard Toxic

An article entitled *Wild Mustard Seed Poisoning in Cattle* by Gwatkin and Moynihan (*Can. J. Comp. Med. and Vet. Sci.*, March, 1943) points out the injurious effects of wild mustard (*Brassica arvesis*) in cattle. The investigation centers upon 10 cows in southern Saskatchewan allegedly poisoned by wild mustard seeds contained in a flax straw pile to which the cows had access, in addition to a small acreage of standing rye. All of the 10 cows died within twenty-four hours. The symptoms were drooling, staggering and falling. The ingesta from the one examined showed a large number of grains identified as wild mustard seeds. A 5 Gm. aliquot contained 0.7 Gm. of the seed, or an average of 14 per cent by weight of the ingesta. An analysis excluded hydrocyanic acid which the flax seed present may have contained. It was thus established that the poisoning was due to mustard seed.

Wild mustard is one of the ubiquitous weeds of tillage crops in the Middlewest and North to which Pammel attributed injurious properties in his talks before veterinary societies and in his *Manual of Poisonous Plants*. The injury is charged to the aklaloid (sinapin) and the glucoside (sinalbin).

Inasmuch as considerable wild mustard may be consumed (by cattle, horses, and hogs, all of which are susceptible to its injurious action) through the stepping up of animal production, the Saskatchewan report is worth keeping in mind.

Sulfanilamide in Turkeys

Studies of the use of sulfanilamide in turkeys by Hinshaw and McNeil (*Poultry Science*, July, 1943) showed that this drug is not safe in that species of fowl. Even in doses having no noticeable effect on general health, egg production was reduced. In blackhead, sulfanilamide should not be used to reduce losses in the laying flock, even though some benefit may be derived in treating the visibly sick.

In single doses of 3 gr. per lb. of body weight in turkeys 4 weeks old; in 4 daily doses of 1 gr. per lb. in birds 4 months old; and 4 daily doses of 0.6 to 0.75 gr. per lb., in turkeys 4 1/2 months old, sulfanilamide caused slight loss of weight, cyanosis, and marked uremia.

Turkeys tolerated 0.5 gr. per lb. for three days, but it caused premature expulsion of both soft- and hard-shelled eggs even after the first dose. No visible effects were noticed in adults given 0.6 gr. per lb. of body weight for two days. There was no effect revealed on fertility or hatchability.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

Nutrition in Large Animals as Influenced by the War

(Excerpts)

P. A. CAMPBELL

West Springfield, Mass.

WE ARE ALL interested in maintaining livestock and poultry in a healthy condition so that the owners and feeders will obtain the returns they have a right to expect. This means good management and good feeds. The study of animal and poultry nutrition has advanced rapidly during the last generation. Perhaps the most important thing we have learned is that there is far more we do not know than that we do know. We have always known what protein is, but now we realize it is important also to understand the makeup of the protein and to balance the amino acids of which it is composed so that the total protein in a feed is efficient in meeting the nutritional requirements of animals or poultry. This is particularly important for poultry and four-footed animals, except ruminants. Ruminants seem to have the ability to synthesize and change the complement of amino acids to more nearly meet their requirements. Within the last few years, we have realized the importance of minerals, vitamins, and other accessory factors, and in formulating rations they are given equal consideration with the other nutrients, such as carbohydrates, fats, and proteins.

As we think along these lines and understand the deficiency diseases which may occur, we wonder why we did not run into more trouble when we were unable to recognize them. The facts are that many of these essential factors are found in a variety of feedstuffs, and deficiencies in most instances were not sufficient to cause serious trouble. But as I look back over a good many years of feeding livestock and poultry, I recall many instances of deficiencies occurring which we attributed to some form of disease and wondered why the veterinarian in charge was not able to cure it. I will illustrate this by one example. Before we knew there was such a thing as vitamin D, one of the numerous barns housing livestock for which I was responsible was located between hills so that little or no sunshine reached it; also, there had been very little sun during the curing of the hay that went into it. This particular winter, we had a number of young calves in the barn—all of them developed big joints, humped backs, and were typical cases of calf rickets or lack of vitamin D, as we now recognize it. At that time, it seemed strange that the veterinarion could not cure them, but it is easy now to understand the reason.

• • •

You are, perhaps, wondering what the protein limitations and scarcity of other critical ingredients will mean to livestock. I can remember distinctly when I was at the University of Maine, that it was customary in this state to feed high percentages of protein to dairy cattle. Dairymen, realizing the value of protein, were feeding altogether too much. It was not uncommon for cottonseed to be the only feed dairy cows received, and many of the feeders were feeding at least as high as 30 per cent protein. You must remember that this was in 1906 to 1908 when we knew little about protein in general. My previous ex-

Excerpts from a paper presented before the Maine Veterinary Medical Association, April 14, 1943.

Director of Feed Research, Eastern States Farmers' Exchange, West Springfield, Mass.

perience and the information that I obtained from the University herd led me to believe that a much lower protein percentage would be equally satisfactory, and I recommended a level of about 24 per cent. Many herds showed improvement under this change. Men occupying similar positions in other states thought I was wrong. We now know that it was not the high protein that was causing the difficulties, but probably the lack of vitamin A. At any rate, this reduction in protein was an improvement, and as we have come down through time, we have learned a lot about the cow and her protein requirements. Although I have fed hundreds of cows a 24 per cent protein grain ration, I finally realized that 20 per cent was sufficiently high and that, if the roughage is satisfactory, a 16 per cent protein dairy ration will meet a dairy cow's protein requirements. So I am not particularly disturbed that, due to the protein limitations, dairy feeds for milking cows have been reduced in the great majority of cases to either a 16 or 18 per cent protein content. I feel positive that you will see no deficiencies resulting from this decrease and, in general, you will not see any decrease in production. If you do, it will come with a dairyman who is a low feeder and has a low quality of roughage. In the aggregate, it will mean that the protein available for feeding dairy cows in general will result in more production than if fed to a lesser number of cows at a higher level.

• • •

Heretofore, in the study of the vitamin B complex, which now embraces at least a dozen separate vitamins, we knew that the cow had a definite requirement for many of these, probably all of them, but we did not understand that she could synthesize them if she received a good ration. In the last three or four years, we have come to realize very definitely that the calf, up until the time that the paunch develops and rumination starts, functions as a one-stomach animal and must have its B vitamins supplied to it.

Axis arms can't win the war but without arms, crafty propaganda can do so. Are you smart enough to parry propaganda? It spars for the weak spots.

Saving Animal Proteins

The following suggestions for conservation of animal proteins for swine feeding are offered in "Feed, Food, and Freedom," a publication recently distributed by the feed companies in New York State:

1) Put pigs on a good pasture. An acre of good pasture, properly grazed by hogs, will save feed equivalent to 1,100 lb. of corn and 45 lb. of tankage. Pigs on pasture will do well on rations containing 2 per cent less total protein than the same kind of pigs fed in dry lot.

2) Feed good legume hay. Hay should be fed in racks for hogs in the breeding herd. Ground hay should be mixed in the regular grain ration for growing pigs at the rate of 5 to 15 per cent.

3) Feed soybeans. Soybeans are an excellent source of protein for sows. The amount of soybeans should be restricted in the ration of growing and fattening pigs —since soybeans may cause soft pork.

4) If you have skimmilk, buttermilk, or whey for which there is no market, feed it to the hogs.

5) Keep hogs healthy. Healthy hogs gain faster on less food.

6) Save protein by following the feeding directions given by your feed manufacturer. Supplement feeds with waste from the house and garden.

Redistributing Milk Cows

The Government's fling at buying cows for re-allocation to prevent their slaughter —if not regulated with due regard for the disease problem involved—may become one of the miscalculations of World War II.

Everything pertaining to feed supply, labor requirements, and credits are included in the plan announced. Disease, as usual, is not considered. The milksheds of New York, Chicago, and Kansas City, notorious for their potentiality as disease centers, are pointed out as places where reforms are to be centered.

Objects as small as one millionth of an inch can be measured with the electron microscope.

Dealing With Shortages and Substitutes

FOR THE past few months, the journals of the feed industry and the farm papers have been reporting serious shortages of important feed ingredients and suggesting substitutes which may temporarily overcome these shortages. The addition of a substitute to a ration soon creates another shortage *ad infinitum*. Therefore, it is difficult to analyze such a situation.

Ceiling prices and other government rulings, the refusal of midwestern farmers to sell their corn at existing prices, and the shortage of transportation and processing machinery have all been blamed for these shortages, but we are probably correct in saying that we do not have and cannot produce enough feedstuffs to properly feed all of the animals and poultry which we are trying to raise. It has recently been estimated that "If we have normal crops (which is improbable) we will have a shortage of six million tons of cereal crops unless a considerable portion of our livestock is liquidated."

In order to deal with this serious situation, the distribution of the available feedstuffs has been entrusted to the feed industry. Reports indicate that the men who carry this vast responsibility are doing a good job of distributing the animal feeds where they can be used to the best advantage. They are being assisted by the nutrition research staffs of the feed industry and of the experiment stations. These men are doing everything possible to anticipate the shortages which will next occur and to recommend substitutes. They are studying the nutritive properties of the substitutes to ascertain if they will completely replace the ingredients which may be lacking. Where necessary, they are recommending supplements to insure an adequate nutrition.

The following item from a service letter of a feed concern illustrates what is taking place.

> In several of my previous messages to you I have mentioned the growing shortage of corn supplies here in the Northeast. The end of the road is in sight. . . .
>
> Taking careful stock of this situation, the operators of your feed mills are planning to use the remaining corn as follows:
>
> 1) Reduce the amount of corn-meal in the poultry mashes and add ground barley in its place.
> 2) Practically remove corn-meal from all other mixed feeds.
> 3) Remove corn from scratch grains and make a mixture of wheat, barley and oats.
>
> College nutrition men have been consulted on these changes. They have advised proper balancing of vitamin A in the mashes and this has been done. They tell us that there will be little change in the nutritional value of the poultry feeds due to this change.
>
> By making these changes now, our corn stocks can probably be stretched until the new corn harvest is well under way.

Usually we can be certain that a substitute for an ingredient, which has been tried and proved, will not supply all of the necessary food elements. It then becomes necessary to supplement the ration, or otherwise a deficiency will develop. The above item regarding the substitution of barley for corn in poultry feed illustrates this point. Yellow corn supplies a precursor of vitamin A. With corn removed from the ration of poultry or swine, it becomes necessary to add this very important vitamin in some other form, *i.e.* pasture, well cured legume hay or a vitamin A concentrate.

Soybean-oil meal offers another example of a substitute which must be supplemented. This valuable source of protein can, to a very large extent, replace the fish and meat meals and the dry milk in the rations of poultry and swine. When this is done, however, it becomes necessary to supplement the ration with additional calcium, phosporus, and certain of the B complex vitamins.

The feed companies are doing much to make sure that the necessary food elements are included in their rations. However, where feeds are home-mixed and substitutes must be used, some of the necessary vitamins and minerals may be lacking. Deficiencies will develop as a result.

The shortage of cereals, which has already been mentioned, probably means that, as time goes on, so much of the grains will be used for feeding swine and poultry that there will be less available for cattle and horses. All grains supply a greater percentage of phosphorus than the roughages

which are fed to cattle and horses. As less grains are fed, it will become necessary to supplement the ration with phosphorus, unless the roughage is grown on soil that has been well fortified with phosphate. Phosphorus supplements have already been discussed in this section of the JOURNAL.

Without a doubt, a large part of the feed shortage will be taken care of by the marketing of animals. On the other hand, some livestock men will attempt to keep animals on rations which are entirely inadequate both as to quantity and quality. Animals thus fed will be more susceptible to parasites. Also, while they may not show definite symptoms of a vitamin deficiency, the overall effect of an inadequate nutrition will be a lowered resistance to disease.

In consulting with the owner regarding a sick animal, it is always well to consider carefully how it has been fed. There is the chance that the ration may not have been nutritionally complete. In this period of shortages and substitutes this possibility is even greater. A careful consideration of the ration may disclose that some essential element is lacking. It is recognized that all of us may not be able to make such an analysis of a nutritional problem. In cases where it is apparent that the feed is deficient nutritionally, it may be advantageous to consult the nutrition staff of an agricultural experiment station. A carefully prepared statement regarding the symptoms and the feeds used may enable the nutrition worker to analyze the problem and to suggest the necessary changes in the ration. Such a procedure will be of inestimable value to the owner and also increase the practioner's knowledge of animal nutrition.

French Claim Discovery of Foot-and-Mouth Disease Antiserum

In France, *l'Effort* of May 19 reports that after ten years' research Prof. Gaston Ramon, with the assistance of Drs. Lemetayer, Minguet, Touze-Yen and Paul Ramon, has discovered a serum against foot - and - mouth disease obtained from horses. The first experiments being most successful, it is hoped that a large scale production will prevent the recurrence of the disease which caused the loss of a million head of cattle in France in 1937.—From *"Public Health under Hitler,"* J.A.M.A, (July 31, 1943) : 957.

Promiscuous Nomenclature

A young man occupying an important position in the government service, and who is interested in improving usage as a means of improving the public relations of the veterinary profession, took the pains to glean through 20 volumes (10 years) of the JOURNAL to show the irregularity of our nomenclature of but one disease—brucellosis. The following table is based upon the titles listed in the indexes:

DATE	BANG'S DISEASE	BRUCELLOSIS	BRUCELLIASIS	BRUCELLA INFECTION
June '33	7	0	0	0
Dec. '33	1	0	0	2
June '34	5	0	0	3
Dec. '34	4	0	0	0
June '35	3	0	1	2
Dec. '35	3	0	0	0
June '36	3	1	0	1
Dec. '36	1	0	0	1
June '37	6	0	0	0
Dec. '37	1	0	0	0
June '38	4	0	0	0
Dec. '38	1	0	0	0
June '39	3	2	0	0
Dec. '39	7	4	0	0
June '40	8	0	0	1
Dec. '40	4	6	0	0
June '41	4	5	0	0
Dec. '41	4	14	0	0
June '42	2	5	0	0
Dec. '42	1	6	0	0

Two years ago, a hint to discard *Bang's disease* for *brucellosis* precipitated a storm of protests on the ground that farmers would not understand our language. Forty years ago we heard the same argument about *tuberculosis*. Note how *brucellosis* has gained ground since 1940 at the expense of *Bang's disease*. Laymen never have disliked the right technical term for a definite entity.

EDITORIAL

The Fourth Chief of the Bureau of Animal Industry

THE APPOINTMENT of Assistant Chief A. W. Miller to succeed Chief John R. Mohler was announced by Secretary Wickard, effective Aug. 1, 1943. To those familiar with the operations of the Bureau, the promotion was a natural one. The new chief has won much distinction as a straight thinker, wise administrator and strict disciplinarian and has climbed to the high office the hard way—from a livestock ranch out in Kansas through upward steps in various divisions of the organization he now commands: meat inspection, field work in the intermountain country, packers and stockyards supervision, interstate inspection, and central office administration as assistant or acting chief. But let his biographer* tell the story:

Dr. A. W. Miller

Arthur W. Miller was born Sept. 27, 1876, in Manchester, N. H. His parents moved to a ranch near Junction City, Kans., when he was 4 months old. After his graduation from high school, he engaged in the production of livestock, taking special interest in the breeding and raising of show and race horses. In 1898, he entered the Kansas City Veterinary College and was graduated in 1901. The same year he entered the service of the Bureau of Animal Industry, United States Department of Agriculture. His first assignmeent was on the federal meat inspection force at South Omaha, Nebr., in the capacity of assistant inspector.

In 1904, Dr. Miller was assigned to field work in Colorado, Nebraska, and Wyoming, where he directed the eradication of infectious livestock diseases. Subsequently, he was engaged in other livestock-inspection and disease-eradication work including participation, on several occasions, in the suppression of foot-and-mouth disease outbreaks.

In May, 1917, he was assigned to administrative work in the Bureau's headquarters at Washington, D. C.; first, as chief of the Field Inspection Division, which covers a wide range of regulatory duties. These have included the control and eradication of scabies in sheep and cattle, the suppression of other animal diseases and the administration of regulations on excluding exotic infections. Still other duties have been the humane handling of livestock and safe transport of export animals. Later, in 1928, when the Packers and Stockyard Act was assigned to the Bureau of Animal Industry for organization and administration, Dr. Miller became chief of the Packers and Stockyards Division, and at the same time, he was appointed assistant chief of the Bureau. When subsequently, in the course of departmental reorganization, the packers and stockyards work was consolidated with other marketing activities of the Department, Dr. Miller relinquished supervision of that activity and became chief of the Bureau of Animal Industry's Interstate Inspection Division. This work involves supervision of the interstate transportation of livestock and the enforcement of livestock quarantine laws. The new chief is a member of the American Veterinary Medical Association and the United States Livestock Sanitary Association. Both of these organizations have been active for many years in coördinating federal and state participation in measures designed to promote animal health.

As evidence of his continued close contact with practical farming, Dr. Miller has a general

*D. S. Burch, Agricultural Research Administration, USDA.

farm in Maryland devoted to dairying, hog and poultry production, and other farm products. This is a 120-acre enterprise.

The selection of Dr. Miller, who is highly regarded among his associates for his efficient conduct of many regulatory duties, as chief of the Bureau of Animal Industry came at a time when the suppression of animal diseases within the country and the exclusion of foreign plagues are essential to the success of the nation's food programs.

Since the Veterinary Division† of the United States Department of Agriculture was made a bureau by Act of Congress (May 29, 1884), four veterinarians, designated *chief*, have succeeded one another in directing its operations and its development. Because of the scientific character of their work and the economic magnitude of their command—the American livestock industry—these chiefs became not only national but international figures in the worlds of science and of social progress. They have served as follows:

Daniel E. Salmon (Cornell University, 1872, native of New Jersey) May 31, 1884 to Nov. 1, 1905.

Alonzo D. Melvin (Chicago Veterinary College, 1886, native of Illinois) Dec. 1, 1906 to Dec. 7, 1917.

John R. Mohler (University of Pennsylvania, 1896, native of Pennsylvania) Dec. 11, 1917 to Aug. 1, 1943.

Arthur W. Miller (Kansas City Veterinary College, 1901, native of Kansas‡) Aug. 1, 1943...

The importance placed upon this office by the American people is preconized in the fact that during these sixty years of their country's history, the appointments were promotions from the next highest grade. Dr. Salmon stepped up from veterinary advisor to the Commissioner of Agriculture and the other three from the post of assistant chief, after years of experience in various Bureau activities. Obviously, this is both a record in and a credit to American federal administration. Playing politics with the health of farm animals cannot be countenanced in this country. If any faults on that score exist, the responsibility will not be found within the ranks of veterinary administrators and veterinary control officials, but rather in the failure of occasional elected officials or government appointees to recognize that efficient animal-disease control by qualified personnel is basic to our vast livestock industry, to successful agriculture, and to the nation's overall welfare.

The JOURNAL seizes this occasion to felicitate Dr. Miller and to pay tribute to his far-seeing predecessors. As he takes office under the stress of gargantuan problems, unprecedented in the history of veterinary medicine, the responsibility of every American veterinarian to his administration is clear: all must work to assure that the time-honored success of the Bureau and the veterinary profession in stamping out diseases of farm animals be not interrupted.

†Name used before May, 1884.
‡Parents moved to Kansas from New Hampshire when he was 4 months old.

The Newest Veterinary Journal

Revue des Sciences Médicales, Pharmaceuticals et Vétérinaires de L'Afrique Française Libre is the name of the newest journal of veterinary medicine. Translated, the title reads "Review of the Medical, Pharmaceutical and Veterinary Sciences of Free French Africa," of the new war-made nation which is now governed by a special commission designed to bring peace among the fighting political parties which brought the downfall of France. The importance of this journal lies in the livability of the sciences concerned. In the issue at hand are articles on brucellosis, scorbutic anemia, tsetse fly and the trypanosomiases of man and animals, pasteurellosis of rabbits, and several articles related only to human medicine.

The bibliographies of the articles show that the authors did not have access to much of the world's literature. The references are from contemporary colonial publications only. "Hands across the sea" are not in sight from the Petain-Laval-Hitler-Mussolini régime.

Magazines Discontinue Dog Columns

"Dog Talk," brilliantly edited by Mary Scott, has ended its career inasmuch as the kennel sections of *Harper's Bazaar* and *House Beautiful* are being discontinued after the April issue.

The kennel department of *Vogue* and *House and Garden* also are being discontinued.—*The Dog World.*

Icelanders Appreciate Aid of American Veterinary Corps

IF THE LIMITED military operations of the American troops in Iceland are taken as the criterion, World War II will write new pages into the history of veterinary science. With rigid censorship fogging the details of our military operations in far-away

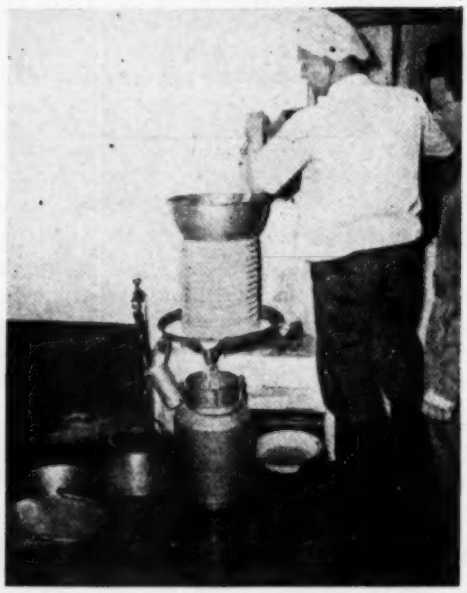


Fig. 1—A lesson on cooling milk to insure low bacterial counts. Improved refrigeration is pointed out as a means of increasing milk consumption.

places, only vague reports of the Veterinary Corps have been printed in veterinary journals. Information arriving from many sources in many ways, has, however, proved that veterinary service with the armed forces has expanded to heretofore unexpected proportions. Animals in war, as animals in peace, are too closely juxtaposed to human affairs to be set aside when nations are fighting for self-preservation. Their relation to *health, nourishment,* and *movement,* the indispensable triumvirate of peace, brings animals and their products into every mind when war breaks out. In this global war, wherever these are threatened, veterinary science, as never before, has been mobilized for application in all of the details characteristic of successful military operation. Happily, the Congress made no mistake when it put the Veterinary Corps under the direction of the Surgeon General. The Act of 1916, which provided for a commissioned personnel for army veterinarians, and later enabled the Surgeon General to develop a veterinary corps for World War I, did not lack foresight. Half a million transport animals and billions of pounds of food went under the protection of veterinary medicine.

At an early stage of World War II, the Veterinary Corps, which is commanded by Brig. Gen. R. A. Kelser, was ordered to send a unit to Iceland, where it is depicting what veterinary science has to do when troops go into the field, in this case, on foreign soil; to be specific, the troops under the command of Maj. Gen. C. H. Bonesteel,

Fig. 2—An Icelander, Grétar Simonarson, and an American veterinary officer engaged in the important task of cleaning utensils.

U. S. Army. We quote from *Leidbeiningar um Hirdingu Búfjár,* a bulletin telling about the work the "trained and experienced Veterinary Corps of the United States Army" is doing not only for the troops but also for that country's population.

> Working in close coöperation with State Veterinarian Mjelkursamsalan and other authorities and institutions, the officers and men of the Veterinary Corps, under

Fig. 3—This is Sig. E. Hlidar (in "civies") and three unnamed officers of the Veterinary Corps, U. S. Army, who are serving with troops in Iceland.

Fig. 4—Committee of the Icelandic Agricultural Society, studying the livestock sanitary regulations suggested by the American command.

Fig. 5—American veterinary officers on duty in Iceland, drawing a blood sample in conducting the serological test for brucellosis among the cows supplying milk to the American troops.

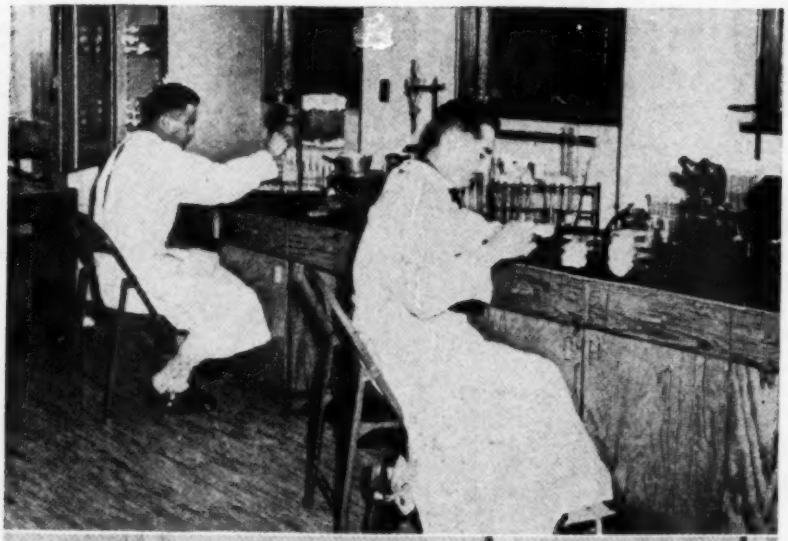


Fig. 6—Laboratory control of animal health in the Icelandic university, showing two veterinary officers examining blood samples collected from cows of the A.E.F. milk-shed.

Fig. 7—Veterinary officers visit the byres to check on the incidence of mastitis. Clean stables and healthy cows are main objectives.

Fig. 8—American veterinary officers in the field investigating the cause of a sheep disease on a farm near Alafossi, Iceland. The owner, Ásgeir Bjarnason, is holding the sheep. Veterinarian Hannes Jónnsson is looking on.

the direction of Maj. Gen. Bonesteel, are scientifically attacking the principal afflictions of cattle, sheep, pigs, and even foxes. Their investigations range all the way from keeping milk from souring to an exhaustive research on the dread jaagziekte disease which annually kills many thousands of Iceland's sheep. In recent months, the army veterinarians (American) have collaborated with Professor Niels Dungal and the pathological department of the University of Reykjavik in studying the

Fig. 9—Laboratory Technician Stefán Björnsson and two American veterinary officers taking samples of milk for examination at the Icelandic university laboratory.

serious disease of sheep known as jaagziekte. Hundreds of cattle have been tested for tuberculosis and methods of conducting the test have been demonstrated. Even more important has been the testing of both cattle and sheep for brucellosis for the first time in Iceland. A high percentage of the cattle tested have reacted, although there have been, as yet, few abortions and little economic loss. Among sheep, the situation is more serious. On some farms, abortions have been as high as 50 per cent.

Constant research in the laboratories of the university, which have been made available to the army veterinarians by the Icelandic government, has enabled them to isolate and study the organism which causes this disease (brucellosis) of sheep, and a vaccine for its control has been developed by them. Experiments will be conducted to determine its effectiveness. To meet still another need, the Research Board of the Medical School and the army veterinarians are seeking to produce a biological product which can be used in testing sheep for paratuberculosis. Jaagziekte is the most serious sheep disease in Iceland. The disease exists in South Africa, and in isolated districts of North Dakota and Montana. . . Efforts are being made to find the cause and how it spreads. If these efforts succeed, all agree that it will be one of the greatest contributions in the history of Iceland.

The bulletin goes on to say that the Veterinary Corps is studying chronic pneumonia and skin affections in sheep, abortion and parasites in foxes, and swine diseases. It has also initiated sanitation of milk products, including dairy-farm hygiene, milk-plant inspection, and ice cream manufac-

Fig. 10—A lesson on sunshine in the raising of swine.

ture. Special attention is given to milk as a food for the young and adult in a country where sunshine, certain vitamins and minerals are lacking in the ordinary human diet, not to mention the part it plays in transmitting tuberculosis, brucellosis, scarlet fever, diphtheria, septic sore throat, and cholera. The importance of healthy cows and proper handling of milk as preventives are emphasized.

Raising of hogs having become popular in recent years in Iceland, the Veterinary Corps has rendered yeoman service in establishing standards of feeding, housing,

and disease prevention. The bulletin dwells at length on the control of parasites and other measures with which American swine producers have been indoctrinated.

Fig. 11—A hog-cholera investigation by American veterinary officers in Iceland.

The excellent grazing and the long summers of Iceland make that country ideal for the raising of sheep. Methods set down for handling their diseases, bacterial and

Fig. 12—An Icelandic fur farmer, Gisli Pórdarson, exhibits his foxes to American veterinary officers.

parasitic, are contained in the text of this historic bulletin.

To signalize the work of the Veterinary Corps as set forth in this complimentary bulletin may seem intentionally boastful. Please perish that thought. The purpose is to emphasize that veterinary science has been nowhere as wisely used as in the United States where animal-disease control has been an obsession for more than fifty years. The object, now as always, has been abundance of food and wholesome food through veterinary science and keeping its application unfettered by any selfish interest—the doctrine to which the AVMA is committed. The officers and men of the Veterinary Corps, wherever they operate, are the messengers of a service of the American system that makes no compromise with diseases of farm animals—a system based on veterinary medical education and research, on a federal "veterinary bureau," on an alert group of state veterinarians, on a legion of unfettered practition-

Fig. 13—An American veterinary officer giving the intrapalpebral mallein test.

ers, and on the growing discipline of a nation-wide organization which keeps the American veterinary house in order. The Veterinary Corps is to be commended for furnishing an example of what can be done to promote good will between nations.

The professional man who isolates himself from his peers is in a prison from which there is but one escape—the open door to the society of his branch of learning.

When populations are undernourished, no fanfare of trumpets, no spurt of patriotism can induce them to struggle against overwhelming odds. Buy War Bonds before it's too late.

Rabies in the United States

There are about 9,000 cases of rabies in the United States, annually, according to Chief Pathologist Schoening of the BAI in an OWI release. Since rabies is not a reportable disease everywhere and fact-finding machinery is lacking, this figure may not include all of the dogs, cats, wildlife, farm stock, and human beings that die of rabies every year in this country. Taken as a reliable estimate and considering the millions of susceptible subjects there are, the figure is less alarming than the nature of the disease itself. As a disease problem, the dollar-and-cents value is low compared with that of a dozen or more animal diseases one can name offhand. Rabies is a shifting malady. It drops in for a visit, stirs up excitement, and then departs to be forgotten; and inasmuch as it does not concern general human welfare like the food-destroying diseases of the farm and has a sporadic, enzoötiological behavior which prevents sustained, nation-wide interest in its eradication, the sentimentality of dog owners meets little trouble in stopping the enforcement of control measures wherever it breaks out.

The American people, like the backward populations of the Near East, prefer to live with their scavenger dogs and their rabies. That science has shown the way to master it doesn't click in the K9 realm. Perhaps, it's not worth losing sleep over rabies. The owners register impolite protests against our aid, the nation's food supply is not damaged, and we know how to protect ourselves against the casual cases that file before our eyes. Certainly, it is not pleasant to be accused of highway robbery for wanting to stamp out a disease for an unwilling industry, inasmuch as the nation's security is not at stake and the "love of dogs" wants the green light at every crossing.

In boasting about the animal-disease mastery that keeps the United States in the war, solidly, we have to tsk, tsk, tsk . . . . in broaching rabies. Here, our fire wouldn't do credit to a bundle of firecrackers. In other words, there is an animal disease that is no more controlled than the wind.

Columnists of some big metropolitan newspapers use some pretty heavy adjectives against scientific rabies control when they start showing off to their sentimental bleachers about their profound knowledge of rabies in dogs. We are, however, thankful (and so should dogdom be) for he-leaders like Captain Judy of *Dog World* who sees the rabies problem of the United States "as is." Without such leaders, dogdom would be out of luck, and we should go on being drummed out of the drill ground of rabies eradication. Let 'em rave is our best brand of stratgey. Disease can always be trusted to make people listen to reason. In the case of rabies, we need no other confederate.

Rabies Vaccination in the Army

The sanitary reports of the Surgeon General (*Veterinary Bulletin*, July, 1943) show that 8,344 dogs, 123 cats, and 1 monkey owned by military personnel at 77 stations were given antirabic vaccine during 1942. Besides, all of the army war dogs were vaccinated. The number is not stated, obviously for military reasons. But no case of rabies occurred in this group. Among the other dogs, there were 6 cases of rabies, 77 3/7 per cent of which were nonvaccinated.

Food and Industrial Production

An example of the importance of proper nourishment to efficient production in industry is furnished by a dispatch from Vichy to a Swiss newspaper. It states that the inferior productivity of French coal miners has its origin in deficient nutrition; quite apart from sheer physical weakness, the deficient food supply has the effect of making coal miners frequently leave their places of work to forage for food in the villages.

Germany also has encountered much difficulty in stopping the downward trend of her coal production, part of the decrease being due to undernourished workers.

Here again is evidence that American food production will help to win the war and all the more reason for emphasis on the principle that increases in foods of animal origin—meat, milk, poultry and eggs—can be brought about by reducing losses due to preventable diseases.

CURRENT LITERATURE

ABSTRACTS

Cooking Garbage to Kill Trichinae

Wright and Bozicevich determined the minimum time it takes to kill trichinae in pork scraps by cooking garbage in open tanks. Pieces of pork 1 by 1 by 1 inch to 6 by 6 by 4 1/2 inches were used. The cold samples were placed in garbage while it was being cooked and the internal temperature of each piece was determined with meat thermometers inserted into the substance of each. The conclusion drawn was that the boiling of garbage in this fashion will kill trichinae in thirty minutes, and it is recommended as an effective scheme for preventing the transmission of trichinosis to garbage-fed hogs. [*W. H. Wright and J. Bozicevich. United States Public Health Service: Experiments in Cooking of Garbage for Destruction of Trichinae in Pork Scraps. Pub. Health Rep., 58, (Mar. 5, 1943): 396.*]

Blast Injuries

Without causing external injury, the blast of high explosives may cause hemorrhagic lesions in various internal organs of experimental animals. The most conspicuous lesions are found in the lungs, where they vary, according to the pressures to which animals are subjected, from small, superficial hemorrhages to hemorrhages which affect the entire substance of the organs. Hemorrhagic lesions have also been observed in the pericardium and epicardium, the thymus, the liver, spleen, intestine, kidney, adrenal, bladder, and uterus. Hemorrhagic lesions are also observed in the submucosa of the upper part of the trachea. Hemorrhages around spinal roots, especially in the thoracic region, are constant, and pial and ventricular hemorrhages on and in the brain, occasional, at high pressures. Rupture of the ear-drums has also been observed at high pressures.

Experiment has shown that the thoracic and abdominal lesions are due to the impact on the body wall of the pressure component of the blast wave, and not to any effect of the suction wave acting directly through the upper respiratory passages. The pulmonary lesions directly due to blast are thus comparable, to some extent, with hemorrhagic lesions which may occur as a result of severe falls or direct blows on the chest wall.

In air raids, people are exposed not only to the direct effects of blast but also to indirect effects such as violent displacement and the impact of falling or flying masonry, both of which may lead to pulmonary hemorrhages. Observation has shown that the direct effects will be experienced only very close to the explosion. Case histories are analysed, and it is suggested that, before diagnoses of internal injuries directly due to blast are made, attention should be paid to the possibility of internal injury due to indirect blast effects. [*S. Zuckerman, Dept of Human Anatomy, Oxford: On the Problem of Blast Injuries. Proc. Roy. Soc. Med., 34, (1940): 171-188.*] Author's summary.

Crystal Violet in Hog-Cholera Prevention

Believing that crystal-violet vaccine would be particularly useful in England if the claims made for it could be substantiated, Doyle made a thorough investigation of the product. His report, because of the comprehensive plan of the work and the clear-cut results obtained, merits the consideration of everyone who is interested in the control of hog cholera.

The vaccines studied were made by Doyle by treating hog-cholera virus with crystal violet and a preservative and incubating the mixture for fourteen days.

Four crystal violet-phenol vaccines were first prepared by the method originally described by Dorset. When tested, these were not uniformly potent. Sixteen crystal violet-disodium phosphate vaccines were then prepared by the method later described by McBryde and Cole.

Two viruses of American origin were used to prepare all except 1 of the vaccines. The American viruses were particularly virulent—no pig exposed to them by injection or contact has survived. All vaccines were safe—vaccinated pigs did not develop a temperature or other visible reaction, nor did they transmit infection to unprotected pigs by contact. Three days of incubation sufficed to inactivate the virus contained in crystal-violet vaccine, but a fourteen-day period of incubation was used.

Crystal violet-phosphate vaccines produced

from the American strains of viruses were uniformly potent. Thus, in one series, 12 such vaccines were used in doses of 2, 5, or 10 cc. on 206 pigs; all were later exposed to cholera, along with 80 unvaccinated controls. Of the 206 vaccinated pigs, 5 died, 3 reacted, and 198 remained well. Of the 80 controls, all died.

In tests of the duration of immunity, 17 pigs were treated with doses of vaccine ranging from 1 to 10 cc. One or more of the vaccinated pigs, together with an unvaccinated control, were exposed at monthly intervals, up to nine months, by virus injection or contact. All vaccinated pigs remained well; all controls died.

In tests against contact infection, 12 pigs were vaccinated with varying doses of 4 different vaccines, and, after ninety-six days, held, together with unvaccinated controls, in contact with virus-injected pigs. Eleven vaccinated pigs remained well, 1 died; all unvaccinated controls and virus-injected pigs died. In a second experiment, separate groups, each consisting of 3 vaccinated pigs and 1 control, were held in contact with virus-injected pigs at three, six, and ten months, respectively, following vacination. All vaccinated pigs remained well; all controls and virus-injected pigs died.

A phosphate vaccine prepared from an English field strain of virus lacked potency when tested against either the homologous strain or against virus of American origin. Vaccines prepared from American strains of virus protected against viruses of either American or English strains. Although the English strains were less virulent than the American, no evidence of a plurality of viruses was found.

Citrated plasma virus was found to afford a greater yield of vaccine than that obtained from defibrinated blood virus. A vaccine prepared from citrated blood was potent when tested 408 days after preparation.

In tests of the time required by vaccinated pigs to develop immunity, it was found that most of the vaccinated pigs given virus within ten days of vaccination died. Pigs inoculated from the twelfth to the twenty-first day remained normal. There was an abnormally short interval between inoculation and death in pigs tested three, four, six and nine days after vaccination. The considerable interval between vaccination and complete development of immunity is considered to be the most serious limitation of the method.

In conclusion, Doyle states that the vaccine did not transmit infection, that it protected pigs against artificial and contact infection with swine fever, that potent lots could be produced with reasonable regularity, and that immunity lasted under the conditions of the test for at least ten months. [*T. M. Doyle: Crystal Violet Vaccine for the Prevention of Swine Fever. Vet. J., 98, (1942): 51-66.*]

BOOKS

Manual of Fractures—The Stader Device

A book entitled *Manual of Fractures—Treatment by External Fixation* describes in detail the mechanism and the use of the device we have erroneously called the Stader splint. Coming as it does in the maelstrom of the greatest of all wars, no book could be more timely insomuch as human surgery is concerned. Restoring the function of broken bones in the shortest possible time and without permanent blemish has been the coveted objective of surgeons since the birth of medical science. As of 1943, the incidence of disabling injuries has multiplied, and with manpower becoming the most precious possession of the fighting nations, the treatment of fractures by some method of accurate coaptation and secure fixation takes its place among paramount issues. The skeleton takes the brunt of many an accident on land, sea, and air. A device that dispenses with the use of cumbersome casts and splints, metal plates and screws, leg-stretching contraptions, and leaves associated wounds and contusions accessible to local treatment; that brings broken bones into perfect alignment and holds the segments fixed while the callous forms; and that allows the injured to recover in the open instead of in bed, could not long be hidden in the pages of current literature. Description of its makeup and its use belongs on the book shelf. Obviously, in the future, no complete book on human surgery is apt to omit the use of the Stader splint. The need of such an apparatus is incontrovertible. Surgeons have dreamed of its coming and never ceased to experiment on different ways of replacing the contemporary vogues above mentioned. A fracture of, or affecting, the appendicular skeleton meant plaster of Paris, pulleys, long period of prone disability, pressure necrosis, distressing pain, crutches and lameness, and, frequently, shortened limbs and other forms of permanent deformity. The invention of the Stader splint seems to underline the beginning of a new era in the treatment of fractured bones in man and animals. The latter furnished the experimental subjects which, in this as in many other events, have come to the aid of the former.

Manual of Fractures gives the "historical approach" leading to announcement of this invention in the veterinary field in 1937. The authors mention Parkhill (1897), Codivilla (1904), Freeman (1919), Steinman (1926), and Reidel (1930) as surgeons who preconized various ideas on external skeletal fixation. But, a survey of these ideas shows

that none of them really "approach" the unique one developed and put to use by Stader in his practice in Illinois and Pennsylvania. They signalize the *need* but do not "approach" an *invention* which combines reduction and immobilization with a single unit for mechanically maneuvering the segments into position.

The manual deals *seriatum* with the following subjects:

1) History of external fixation.
2) Shock in fracture.
3) Principles and advantages.
4) Pin seepage, its cause and prevention.
5) Mechanical principles and application.
6) Errors.
7) ...
8) ...
9) Delayed union and nonunion.
10) Fractures of the mandible, clavicle, humerus, radius and ulna, *et al.*
11) Compound factures, ununited fractures, malunions.
12) Arthrodeses, bone grafts, x-ray studies.
13) Fractures in the service (at sea).
14) Antipendulum extension apparatus and fracture frame.
15) Adjustable hammock, fractures of the pelvis.

The technique described, including the anesthesia for each of the various uses, shows that this somewhat new device has already been widely employed under established standards in the Navy. The book is dedicated to "naval medical officers and hospital corpsmen who have lost their lives in the service of their country." Although devoted solely to the use of Dr. Stader's device in human surgery, the pride of possession should make this manual popular in the veterinary profession. [*Manual of Fractures. Treatment by External Skeletal Fixation. By C. M. Shaar, M.D., F.A.C.S., Captain, Medical Corps, United States Navy, and Frank P. Kreuz, Jr., M.D., F.A.C., Lieutenant Commander, Medical Corps, United States Navy. Cloth. 300 pages. 148 illustrations. W. B. Saunders Company, Philadelphia and London. 1943. Price, $3.00.*]

Proceedings, Kansas Veterinary Medical Association, 1943

A welcome donation to the Association's library is the well-compiled annual report of this constituent association, edited by President Bower, its longtime secretary. The booklet contains the papers, symposia, addresses, and business proceedings, all well edited and bound for the records.

The symposium on mastitis reviews mammary anatomy and the new drugs used in its treatment by W. M. McLeod and E. F. Sanders, respectively. The merits and failings of the drugs now employed for udder infusion are told. Hypoglycemia of newborn pigs, infectious types of swine enteritis, and swine erysipelas are described by T. W. Munce. E. R. Frank speaks at length on lameness in horses, and Carl F. Schlotthauer on diseases of the nervous system of dogs. The sheep symposium, which brought out extensive discussion, included a talk on community sales barns by Livestock Sanitary Commissioner Miller. Resolutions, committee reports, and a draft of the constitution and by-laws are included. [*Proceedings, Kansas Veterinary Medical Association, edited by Chas. W. Bower. Board. 103 pages. Published by the Association.*]

Vegetable versus Animal Protein

Shortage of the usual animal protein products fed to farm animals (meat scrap, tankage, fish meal, dried skimmed milk, and dried buttermilk) turns attention to the relative value of vegetable proteins in animal production. The questions of vitamin and mineral content and digestibility enter into the problem. Between the two, there is no qualitative difference in amino-acid analyses. The essential amino acids are found in both and the two cannot be sharply distinguished, except that the proteins of vegetable feed are somewhat less digestible. However, in practical feeding, the difference is negligible. Although poultry is pointed out as an exception, there is considerable evidence that even here the belief is not well founded. If arginine, methionine, and glycine are required in relatively greater amounts in poultry than in mammals, the advantage of animal protein appears to lie in the larger amount contained.

Soybean meal has been found somewhat better than a protein supplement in chicks when fed with a special mineral mixture and sprouted oats. In swine and poultry feeding, the deficiency of vegetable feeds is in vitamins for which animal feeds are noteworthy. Various authors are cited to arrive at the conclusion that the maximum productivity of swine and poultry is not due primarily to the protein intake but rather to the higher content of certain vitamins, calcium, phosphorus, and possibly some of the micronutrients. When vegetable is substituted for animal protein, an increased intake of protein should be allowed to make the adjustment. [*Circular Series, 117 (May, 1943) National Research Council. Ninth Report of the Committee on Animal Nutrition.*]

THE NEWS

AVMA Activities

Convention Notes

The New President

At the closing session of the War Conference, President-Elect Chas. W. Bower (KSC '18), distinguished practitioner of Topeka, Kan., stepped into the presidential chair to succeed

Dr. Charles W. Bower

President W. W. Dimock of Lexington, Ky. (Corn. '05). The accession comes after a year of unusual activity on the part of the president-elect, for besides participating in the many important meetings of the Board of Governors, Dr. Bower made two trips to the Pacific Coast and one to Mexico in behalf of the Association, besides taking active part in meetings of constituent associations in the intermountain country and the Middlewest. The election of presidents a year in advance with the duty of serving on the Board of Governors forthwith, along with the president and chairman of the Executive Board, has again proved to be a wise step in the building of good will and the strengthening of business administration.

In stepping into the presidential chair, Dr. Bower ends a year of hard work and sacrifice and adds another name to the long list of practitioners who have served as presidents of the AVMA.

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Officers Chosen. — James Farquharson, Ft. Collins, Colo., was elected *president-elect*, and J. V. LaCroix, Evanston, Ill., treasurer. The *vice-presidents* elected were: M. M. Leonard, Asheville, N. C.; R. A. Hendershott, Trenton, N. J.; John L. Tyler, Whittier, Calif.; Chas. A. Mitchell, Ottawa, Can.; and Fernando N. Camargo, Mexico, D. F. J. G. Hardenbergh was retained as *executive secretary* and L. A. Merillat as *editor*.

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The President-Elect

James Farquharson, Fort Collins, Colo., was chosen president-elect at the war conference, eightieth annual meeting, in St. Louis, August 25-26, 1943. He is professor of surgery and clinics, division of veterinary medicine, at his alma mater, Colorado State College, Ft. Collins.

James Farquharson

Dr. Farquharson was born in Aberdeenshire, Scotland, Jan. 19, 1897. He received his early education in Pueblo, Colo., and graduated from Colorado State College in 1921. He was married to Margaret M. McCabe in 1923. Dr. Farquharson has been a member of the AVMA since 1922.

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The Twelfth International Veterinary Congress prize was awarded to Dr. Otto Stader, Ardmore, Pa., in recognition of his invention of a new method of setting and retaining fractures by external fixation with the device originally known as the Stader splint.

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An attendance of 700 was registered at the St. Louis meeting, with Canada and Mexico represented. The St. Louis press gave the meeting excellent publicity, carrying a great deal of material on the importance to the war effort of veterinary medicine.

J. L. Axby Reelected to Executive Board from District III; S. F. Scheidy Elected from District II

The polls for election of two members of the Executive Board closed on August 15, 1943. Drs. W. A. Young and E. R. Maschgan of Chicago acted as tellers to count the ballots and certified the following results.

In District III (Illinois, Indiana, and Wisconsin), J. L. Axby of Indianapolis was reëelected. He is the present incumbent, his term expiring at the close of the annual meeting, Aug. 25-26, 1943. The new term is for a five year period ending in 1948. Dr. Axby was recently reappointed state veterinarian of Indiana by the newly-organized Livestock Sanitary Board. He has been prominent in association affairs for many years and needs no introduction to JOURNAL readers or AVMA members.

In District II (Delaware, District of Columbia, Maryland, New Jersey, and Pennsylvania), S. F. Scheidy of the medical research division, Sharp & Dohme, Glenolden, Pa., was elected. Dr. Scheidy was graduated from the University of Pennsylvania in 1929 and joined the AVMA the same year. For several years, he was employed by Abbott's Dairies, Inc. of Philadelphia as a field veterinarian; in 1939, he was appointed chief resident in the Veterinary Hospital, University of Pennsylvania, which position he filled until going with Sharp & Dohme late in 1942. Dr. Scheidy succeeds William H. Ivens, Sr. of Philadelphia on the Executive Board for a five year term beginning with the close of the 1943 annual meeting.

Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Bremer, Louis H., Wilmington, Ohio.

Burns, Henry Chas., New York Port of Embarkation, Brooklyn, N. Y.

Crow, Louis C., c/o General Delivery, Ada, Okla.

Devine, Kenneth D., Box 173, Lafayette, Calif.

Dowds, Stanley J., Hawley, Minn.

Engard, Richard M., 231 W. 2nd St., Xenia, Ohio.

Erickson, Carl, Miramar Hotel, St. Cloud, Wis.

Gay, Wm. J., Antioch, Ill.

Glucksman, Norman J., Spooner, Wis.

Haller, C. J., 138 Linden Ave., Ithaca, N. Y.

Holtzman, Jacob, Station Hosp., Army Air Base, Fort Douglas, Utah.

Hupp, Lynn D., 1339 E. Armour, Kansas City, Mo.

Ingram, H. E., c/o Swift & Co., 2300 S. Lamar, Dallas, Texas.

Irvin, Hugh, 430 W. Cambridge Ave., College Park, Ga.

McGill, Dana T., Mt. Sterling, Ill.

Mathis, Rudy C., State Veterinarian, Atlanta, Ga.

Newton, William H., Ashville, Ohio.

Petersen, Wm., General Delivery, Mt. Vernon, Wash.

Roberts, Seymour R., General Delivery, Stockton, Calif.

Rubenstein, A. M., 418 Ninth St., W., Huntington, W. Va.

Schwobel, W. P., c/o Somerset Veterinary Inf., State Highway 29, Somerville, N. J.

Siver, Dougal, 429 Wrightwood Ave., Apt. 1-N, Chicago, Ill.

Stefanski, A. M., 514-16 P. O. Bldg., Jackson, Miss.

Thompson, R. A., Silver Lake, Minn.

Trimble, Monte M., 759 E. Main, Galesburg, Ill.

Trundy, Edward L., Bangor, Maine.

Vogel, W. M., 457 Sandhurst Dr., Dayton, Ohio.

Newspaper Comment

Harrodsburg (Ky.) Herald

(Apr. 2, 1943)

Veterinarians in charge of rare and costly tropical birds and animals in big city zoos have reported to the American Veterinary Medical Association that the shortage of such special foods as bananas may soon be a greater threat to these zoo inmates than the chance of air raids or bombing attacks.

"Many exotic birds and animals depend on bananas as part of their diet, but some zoos are already finding it difficult to get this fruit in sufficient quantities," Dr. J. G. Hardenbergh, executive secretary of the Association, reported. . . .

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Pawhuska (Okla.) News

(Apr. 30, 1943)

Since farmers are being called upon to increase pork production for wartime needs, every effort should be made to prevent the loss of new-born pigs, says Dr. Howard Welch of the Montana Veterinary Research Laboratory.

One of the common causes of losses among new-born pigs is hairlessness, caused by lack of iodine in the soil, water and feed. . . .

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

ANGSTROM, C. I.
Pigeon Breeding & Training Center, C.S.C.R. T.C., Camp Crowder, Mo.
D.V.M., Iowa State College, 1938.
Vouchers: A. W. Uren and E. A. Conklin.

BRADLEY, NEWTON W.
Ethel, Mo.
D.V.M., Kansas City Veterinary College, 1916.
Vouchers: Ashe Lockhart, G. L. Dunlap.

BRIMER, WILLIAM W.
1205 San Pablo Ave., Berkeley, Calif.
D.V.M., Washington State College, 1933.
Vouchers: R. P. Cope and T. A. Berry.

CARR, F. S.
Cairo, Ga.
D.V.M., University of Georgia, 1931.
Vouchers: B. E. Carlisle and J. M. Sutton.

CHAMBERLAIN, P. C.
Elsberry, Mo.
M.D.C., Chicago Veterinary College, 1910.
Vouchers: Ashe Lockhart and G. L. Dunlap.

CHASE, IRVING N.
610 Main St., Oconto, Wis.
D.V.M., Ohio State University, 1941.
Vouchers: J. W. Pritchard and D. A. Funderburg.

CORSON, CHARLES R.
Middlebury, Ind.
D.V.M., Michigan State College, 1938.
Vouchers: W. H. Stroup and A. A. Barry.

CUMMINGS, C. H.
Fairview, Mo.
D.V.M., St. Joseph Veterinary College, 1921.
Vouchers: Ashe Lockhart and G. L. Dunlap.

DILLARD, W. C.
Farmington, Mo.
D.V.M., Kansas City Veterinary College, 1916.
Vouchers: G. L. Dunlap and Ashe Lockhart.

FONDREN, V. H.
114 Kendalia Ave., San Antonio, Texas.
D.V.M., Ohio State University, 1928.
Vouchers: U. E. Marney and G. W. Parker.

GODOY, MIGUEL F.
Casilla 130, Curico, Chile, S. A.
M.V., Universidad de Chile, 1940.
Vouchers: J. San Miguel I. and A. Baglina.

HENTHORNE, R. DALE
Spencer, W. Va.
D.V.M., Ohio State University, 1943.
Vouchers: C. E. Paden, Jr., and T. C. Green.

HOLLINGSHEAD, E. E.
26 N. Skokie Valley Rd., Highland Park, Ill.
D.V.M., Ohio State University, 1943.
Vouchers: M. J. Skala and J. J. Spanabel.

KIGER, G. J.
Alta Vista, Kansas.
D.V.M., Kansas City Veterinary College, 1914.
Vouchers: F. B. Croll and Ashe Lockhart.

KINNISON, C. R.
504 Webster St., Chillicothe, Mo.
D.V.M., St. Joseph Veterinary College, 1917.
Vouchers: G. L. Dunlap and Ashe Lockhart.

LUJAN, LEANDRO E.
Calle Albino Mireles s/n, Fcto Zarco, Chihuahua, Chih, Mexico.
M.V., Escuela Nacional de Medicina Veterinaria, 1937.
Vouchers: F. Camargo N. and C. W. Bower.

MCCLURE, WILL E.
25 W. 18th, Hutchinson, Kansas.
D.V.S., Kansas City Veterinary College, 1905.
Vouchers: Ashe Lockhart and F. B. Croll.

MCGREW, E. N.
1932 Midland Blvd., Fort Smith, Ark.
D.V.M., Kansas State College, 1936.
Vouchers: J. S. Campbell and Ashe Lockhart.

MOODY, C. A.
Newnan, Ga.
D.V.M., University of Georgia, 1924.
Vouchers: B. E. Carlisle and O. N. Mathis.

PEARCE, O. K.
Moscow, Kansas.
D.V.M., St. Joseph Veterinary College, 1917.
Vouchers: Ashe Lockhart and F. B. Croll.

RANDLE, JOHN A.
Greenville Army Air Field, Greenville, Miss.
D.V.M., Iowa State College, 1938.
Vouchers: E. S. Brashier and C. A. Allen.

REED, FRANCIS I.
Morris, N. Y.
D.V.M., Cornell University, 1926.
Vouchers: J. N. Frost and A. M. Mills.

RICHARDSON, CHARLES E.
P. O. Box 164, Versailles, Mo.
D.V.M., Kansas City Veterinary College, 1913.
Vouchers: G. L. Dunlap and Ashe Lockhart.

RILEY, A. H.
Box 464, Gardner, Kansas.
D.V.M., Kansas State College, 1925.
Vouchers: Ashe Lockhart and F. B. Croll.

SCHATTENBURG, A. E.
Riley, Kansas.
D.V.M., Kansas State College, 1919.
Vouchers: E. J. Frick and John Pugh.

SCOTT, J.
Mound City, Mo.
D.V.S., Western Veterinary College, 1903.
Vouchers: Ashe Lockhart and G. L. Dunlap.

SCRIBER, R. G.
2240 Greenwood Rd., Shreveport, La.
D.V.M., Kansas City Veterinary College, 1913.
Vouchers: J. D. Jones and Ashe Lockhart.

SMITH, RUEBEN E.
Margaretville, Delaware Co., N. Y.
D.V.M., Cornell University, 1915.
Vouchers: L. A. Corwin and C. P. Zepp.

WRIGHT, ALAN W.
Main St., Vergennes, Vt.
D.V.M., Cornell University, 1938.
Vouchers: L. A. Evans and G. N. Welch.

YOUNG, H. GRADY
224 Fletcher St., Thomasville, Ga.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: V. E. Rackley and W. V. Petty.

ZOLLINGER, C. E.
839 W. 5th St., Junction City, Kansas.
D.V.M., Kansas State Agricultural College, 1919.
Vouchers: F. B. Croll and Ashe Lockhart.

Second Listing

Alexander, S. A., 320 E. Windsor St., Monroe, N. Car.

Beckom, Edwin A. Jr., Jacksonville, Texas.

Bishop, Robert S., Rt. 1—Box 279, Fresno, Calif.

Brown, Scott B., 1300 Owyhee St., Boise, Idaho.

Gruebler, K. R., Liberstad 50, Santiago, Chile, S. A.

Hall, H. W., 552 Forest Drive, S.E., Cedar Rapids, Iowa.

Hostetler, Roy I., 560 Siskiyou Blvd., Ashland, Ore.

Mills, Harold B., Station Hospital, Camp Wolters, Texas.

Pegg, Charles Elmer II, Station Hospital, Tuskegee Army Air Field, Tuskegee, Ala.

Sours, Munro, 712 So. Main St., Pleasantville, N. J.

Thompson, John Thomas, Burns & Co., Regina, Sask., Can. V.S., Ontario Veterinary College, 1908.

1943 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the administrative by-laws to members in good standing of junior chapters. Applications from this year's classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made applications for membership.

Washington State College

FREIERMUTH, GEORGE, D.V.M.
Box 147 College Station, Veterinary Clinic, Washington State College, Pullman, Wash.
Vouchers: E. E. Wegner and E. C. McCulloch.

MENIG, O. RICHARD, D.V.M.
Four Lakes, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

NEWHALL, JAY H., D.V.M.
Junction City, Ore.
Vouchers: E. E. Wegner and G. F. Reid.

POTTS, BURT E., D.V.M.
Rt. No. 2—Box 2164, Kent, Wash.
Vouchers: E. E. Wegner and C. A. Schneider.

TOWNSEND, WM. H., D.V.M.
Livestock Sanitary Board, Helena, Mont.
Vouchers: E. E Wegner and J. D. Wipf.

Second Listing

Kansas State College

Anderson, Eugene E., D.V.M., Greenleaf, Kansas.

Atkins, Robert C., D.V.M., 2815 Washington, Parsons, Kansas.

Berg, Leo G., D.V.M., Harper, Kansas.

Bowers, Don R., D.V.M., Downs, Kansas.

Brecheisen, Adell W., D.V.M., Welda, Kansas.

Brown, Francis H., D.V.M., 420 Humboldt St., Manhattan, Kansas.

Buchli, Richard, D.V.M., 4404 Wornall Rd., Kansas City, Mo.

Burns, John R., D.V.M., 320 S. 8th St., Manhattan, Kansas.

Caraway, Hugh L., D.V.M., 2629 Claiborne, Shreveport, La.

Coffman, Roger G., D.V.M., Rt. No. 1, Overbrook, Kansas.

Cook, Raymond H., D.V.M., Courtland, Kansas.

Donahue, Dennis R., D.V.M., 229 N. Clark St., Bonner Springs, Kansas.

Foelschow, Leslie O., D.V.M., 4046 Hamilton St., San Diego, Calif.

Gatzoulis, Paul, D.V.M., 618 St. Paul St., Kansas City, Kansas.

Guifoil, Joseph, D.V.M., 221 N. 17th, Kansas City, Kansas.

Harris, Warren G., D.V.M., 1220 Vattier, Manhattan, Kansas.

Henrikson, Keith D., D.V.M., R.R. No. 2, Concordia, Kansas.

Hineman, Kalo A., D.V.M., Dighton, Kansas.

Hineman, Richard E., D.V.M., Dighton, Kansas.

Hoins, John III, D.V.M., 621 Pawnee, Leavenworth, Kansas.

Holler, Orvin H., D.V.M., Conway, Kansas.

Isaacson, Orvin H., D.V.M., Stonefield, Minn.

Jackson, S. Lester, D.V.M., Parker, Kansas.

Lamont, Jack D., D.V.M., 1219 Pierre St., Manhattan, Kansas.
Lumb, W. V., D.V.M., 1814 Fairchild, Manhattan, Kansas.
McClurkin, Arlan, D.V.M., R.R. No. 2, Clay Center, Kansas.
McMahan, Willard L., D.V.M., Rossville, Kansas.
Meredith, W. Hugh, D.V.M., Lincoln, Kansas.
Miesse, W. B., D.V.M., R.R. No. 1, Marion, Kansas.
Minnis, Russell G., D.V.M., 802 Leavenworth St., Manhattan, Kansas.
Mitchell, Kenneth, D.V.M., Axtell, Kansas.
Moheny, Leonard W., D.V.M., Sawyer, Kansas.
Moody, Robert, D.V.M., Greeley, Kansas.
Newman, John P., D.V.M., 914 Leavenworth St., Manhattan, Kansas.
Oberst, Fayne H., D.V.M., 305 N. Olivette, McPherson, Kansas.
Ogilvig, Fred B., D.V.M., Lake of Forest Club, Edwardsville, Kansas.
Olney, Richard, D.V.M., Cassville, Mo.
Penticuff, Clarence Jr., D.V.M., 1009 Armstrong, Kansas City, Kansas.
Poppenhouse, Robert L., D.V.M., 1119 Houston, Manhattan, Kansas.
Porter, Dean, D.V.M., Ht. Hope, Kansas.
Porter, John J., D.V.M., Selma, Kansas.
Pyles, Robert L., D.V.M., 1601 Walker Ave., Kansas City, Kansas.
Reeve, Marshall P., D.V.M., Stone Apts., Stevens Ave., Garden City, Kansas.
Rockhold, Merrill, D.V.M., Herington, Kansas.
Shane, C. K., D.V.M., 531 N. Manhattan Ave.,
Splitter, Earl J., D.V.M., Frederick, Kansas.
Thies, William M., D.V.M., Hillsboro, Kansas.
Vacura, Gordon, D.V.M., Jackson, Minn.
Weber, Howard O., D.V.M., 2930 N. 37th St., Kansas City, Kansas.
White, Wilbur W., D.V.M., Delphos, Kansas.
Wilson, Amos P., D.V.M., Rt. No. 3, Manhattan, Kansas.
Zimmerman, Kenneth C., Jr., D.V.M., 703 W. Ninth St., Coffeyville, Kansas.

Michigan State College

Green, Merlin James, D.V.M., 435 M.A.C Ave., East Lansing, Mich.

Ohio State University

Dahmen, John R., D.V.M., Cortland, Ohio.
Well, Frederick, D.V.M., A.A.B., Mt. Home, Idaho.

Ontario Veterinary College

Lawrence, Ronald E., B.V.Sc., 12 Russell St., W., Lindsay, Ont., Can.
Talbot, G. P., B.V.Sc., Hub 4, O.T.C., Brockville, Ont., Can.
Taylor, Ian W., B.V.Sc., 206 Balmoral Ave. S., Hamilton, Ont., Can.

Washington State College

Crowl, Walter B., D.V.M., 945 N. Fairfax Ave., Los Angeles, Calif.
Davis, Sanford E., D.V.M., 829 Orchard Ave., Grants Pass, Ore.
Duby, George D., D.V.M., 316 W. 76th St., Seattle, Wish.
Jenney, Edwin W., D.V.M., S. 519 Division St., Spokane, Wash.
MacKintosh, Roderick G., D.V.M., 112 Park Ave., Yakima, Wash.
Peterson, Ivan A., D.V.M., 945 N. Fairfax Ave., Hollywood, Calif.

U. S. GOVERNMENT

The New Surgeon General of the Army.—Brig. Gen. Norman T. Kirk, on the retirement of Major Gen. James C. McGee June 1, 1943, was appointed to the office of Surgeon General

Major General Norman T. Kirk,
Surgeon General of the Army

of the Army with the rank of Major General. The new commander of the Medical Department steps into the most important position in the medical profession of this country well prepared for its arduous and far-flung duties. The job now touches the vital medical problems of the whole world—medical, surgical, sanitary, dental, and veterinary—in the mist of a global war of unprecented magnitude. The veterinary

profession joins with the other services in tendering General Kirk its complete support.

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Publication Changes Name.—For the third time, the periodical devoted to the veterinarians of the Bureau of Animal Industry, USDA, has changed its name. Its name is now *The Federal Veterinarian*, Vol. 1, No. 1 of which is dated July, 1943. Publication began Oct. 22, 1922, under the name *News Letters* and on Jan. 1, 1926, the name was changed to *The Bureau Veterinarian*. Its publication is sponsored by "The National Association of Federal Veterinarians," formerly called "The National Association of Bureau of Animal Industry Veterinarians." The address of the new organ remains the same—P. O. Box 187, Kansas City, Kans. F. A. Imler, secretary-treasurer of the Association, remains the editor.

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Army

Retirement of Colonel Leininger.—Special Orders, No. 158, W.D., June 7, 1943, retired Colonel Daniel B. Leininger of the Veterinary Corps, effective June 30, 1943. Colonel Leininger, a native of Pennsylvania where he was born Sept. 27, 1879, graduated at Kansas City Veterinary College with the class of 1906. He became an army veterinarian in 1911 and held the temporary rank of Major during World War I. During the postwar period he passed through all the commissioned grades to become a Colonel in 1937. He served with the punitive expedition into Mexico in 1916 and was twice on duty in the Philippines. In recognition of his knowledge of diseases of the foot, and horseshoeing, he occupied the position of senior instructor in the Department of Hippology, The Cavalry School, Fort Riley, for three years, and until now was a prominent figure in horse show and hunt club circles of the Southwest. "An officer of high attainment and a man of fine character, Colonel Leininger has been a credit to his uniform and his country during his thirty years of army service," is the compliment paid to him in an official document signed, Roger S. Fitch, Colonel, Cavalry, Commanding.

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Livestock Slaughter Licensing.—Details of the new overall program of licensing livestock slaughterers, effective August 15, were announced on August 10, 1943, by the War Food Administration.

As announced on July 19, the program will supersede existing food distribution orders affecting slaughter and delivery, but will continue their major provisions, including the present quota system regulating deliveries of meat to civilians. Officials pointed out that the present individual quotas will remain in effect until authorities have reviewed them thoroughly. Major regulations setting up the program are contained in Food Distribution Order No. 75.

From now on, slaughterers will be divided into three main classes. Class 1 will include those who slaughter under federal inspection. Class 2 will include those not under federal inspection except farm slaughterers who will be identified as class 3 slaughterers. Purchases of meat by the federal procurement agencies will be limited to class 1 slaughterers. Those slaughterers who are classified in class 2 may secure class 1 licenses by obtaining federal inspection.

Purpose of the new licensing program, it was explained, is to simplify and speed up the operation of the meat program necessary for successful prosecution of the war. Jurisdiction over most commercial slaughterers licensed under the new order will be transferred to the Food Distribution Administration regional office of the territory in which the slaughterer is located and delivers meat. The only exceptions to this rule will be those designated as "national packers" (slaughterers who ship meat on a large scale across state boundaries) whose operations will be supervised by the FDA in Washington.

One phase of the program will provide an opportunity for slaughtering establishments not now under federal inspection to increase their slaughter. Up to now, slaughter in non-federally inspected plants has been limited to civilian quotas based on 1941 slaughter. But there has been no limit on the total quantity of livestock that federally-inspected plants can slaughter for government purchase.

Arrangements have been made to permit the extension of federal meat inspection to plants which may qualify for such inspection and who may wish to sell chilled or fresh frozen meat to war procurement agencies. Such slaughterers will be permitted under the new program to apply for either complete or "limited" federal inspection. If they qualify for the latter type, federal inspection of their products will be limited to the animals and products that they may wish to prepare for sale to federal procurement agencies.

Instructions for obtaining licenses under the new program are being mailed to all persons concerned, indicating which FDA offices will receive applications. Farm slaughterers will continue to operate under the permit system. All local slaughterers and those commercial slaughterers operating within a state will apply for licenses at the 7 regional offices of the Food Distribution Administration. The regional offices are located at New York, Chicago, Atlanta, Des Moines, Denver, San Francisco, and Dallas.

Slaughterers designated as "national packers"

who ship large quantities of meat between states will apply through the FDA Washington office. Butchers are not required to apply for licenses but they will be issued licenses by the regional offices after a review of their current quota basis. Butchers are those other than farm slaughterers who slaughter less than 300,000 pounds liveweight a year.

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Poultry Improvement Plans Modified

The Department of Agriculture, on July 26, 1943, announced several changes and redirections of emphasis in the operation of the National Poultry Improvement Plan. Paul B. Zumbro is the federal coördinator in charge of this activity. The changes concern the training of new agents for flock-selecting and pullorum-testing duties, the authorization of such persons to do certain work formerly performed by state inspectors, for modified supervision of the advertising of hatcheries, and simplification of several administrative features of the plan. The changes are the result of recent action, in Washington, by an emergency executive committee previously authorized to make modifications to meet wartime and other special needs.

In commenting on the action of the committee, Zumbro said that many of the annual training schools for flock-selecting and pullorum-testing agents in the states will be in August and September. "Some of the skilled agents who previously performed these duties have entered the armed forces," he said, "and experienced poultry raisers, including women, interested in such training, are encouraged to consult their state extension poultrymen. The training of new agents is to receive special emphasis owing to the contribution of flock-improvement and disease-control work to the nation's food-for-freedom program. The time and place of the training schools in each state, most of which are held at the agricultural colleges, may be learned from the extension poultryman."

Several modified provisions of the plan deal with the classification of flocks tested for the control and eradication of pullorum disease which is transmitted from breeding stock to chicks through hatching eggs.

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Cattle in Fourteen More Counties Are Brucellosis Free.—The Department of Agriculture has announced that 14 counties in 10 states have been added to the list of modified accredited Bang's disease-free areas, making a total of 582 counties in 24 states which are considered to be practically free of Bang's disease (brucellosis) in cattle.

In the 14 new counties there are approximately 176,600 dairy and breeding cattle over 6 months of age which have been tested one or more times in the coöperative program for the control and eradication of brucellosis, according to Dr. A. W. Miller, chief of the Bureau of Animal Industry. In 4 of these counties it was possible to meet the requirements of the regulations providing for modified accredited Bang's disease-free areas as the result of only one test; in 8 counties it was necessary to make two tests. The other counties required three and four tests.

There would have been more counties accredited, Dr. Miller explains, if it had not been necessary to curtail the brucellosis work because of the limited number of veterinarians available for duty. There is a constant demand for this work in many states. In other states where there is a much higher incidence of infection, the calfhood vaccination program is being followed to a considerable extent, with or without the removal of the adult reactors from the herds, as may be indicated and decided upon by the coöperating state and federal officials in charge of this activity.

Following is a list of newly accredited counties, by states, together with those reaccredited for an additional period of three years:

Alabama: Clay, Jackson, Talladega.

Georgia: *Barrow, *Cherokee, *Dawson, *Forsyth, *Gilmer, *Gwinnett, *Hall, *Jackson, *Madison, *Murray, *Oglethorpe, *Pickens, *Walton.

Maine: Franklin.

Maryland: Somerset.

Michigan: Oscoda.

Minnesota: Aitkin, *Polk, *Red Lake.

Mississippi: Calhoun.

North Carolina: *Allegheny, *Beaufort, *Catawba, *Cherokee, *Chowan, *Cleveland, *Columbus, *Davidson, *Duplin, *Gaston, *Granville, *Johnston, *Jones, *McDowell, Stanly, *Union.

Ohio: Wood.

Oregon: *Benton, *Clatsop, Curry, *Douglas, *Hood River, *Lane, *Lincoln, *Linn, *Marion, *Polk, Washington, *Yamhill.

Pennsylvania: Blair, Huntington, *Juniata, *Sullivan.

Tennessee: *Bradley, *McMinn, *Monroe.

Virginia: *Accomac, *Appomatox, Campbell, *Caroline, *Charles City, *Chesterfield, *Franklin, *Hanover, *Henrico, *King and Queen, *King George, Lee, *Louisa, *Lunenberg, *Madison, *Mathews, *Northampton, *Pulaski, *Scott.

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*Reaccredited for a period of three years from July 1, 1943.

Report of the Subcommittee on Nutrition of the Pet Animal Industry Advisory Committee of the War Food Administration

Objectives.—In order that the purposes of the Pet Animal Industry Advisory Committee may best be served by the Subcommittee on Nutrition, the following duties have been outlined as representing the objectives of this subcommittee under present conditions:

1) To assemble and make available information on the actual nutritional requirements of dogs and on the efficiency of available feedstuffs in meeting these requirements.

2) To draw up recommendations regarding experimental work which is needed to supply information to supplement that already available and to assist in the wise rationing of feeds for dogs so as to minimize the impact on the national food supplies for human use and for livestock production.

3) To make recommendations regarding the most economical use, from an overall nutritional standpoint, of available feedstuffs for dog feeding as the conditions governing the national food supplies change.

4) To make, from time to time, practical recommendations on dog feeding to guide the average American pet owner.

5) To pass upon the press releases prepared by the Pet Animal Industry Advisory Committee on the subject of feeding of dogs in order that there may be no misinterpretations of recommendations submitted by the Subcommittee on Nutrition.

Progress.—Progress made toward these objectives is reported as follows:

1) The information regarding the fundamental nutritional requirements of the dog is at present very meager. Several laboratories have reported the minimum requirements for certain specific nutrients, and these reports are being assembled by the Division of Biology and Agriculture of the National Research Council and will be available to the Subcommittee on Nutrition. It is the belief of the Subcommittee that the available information will be seriously lacking in many respects, particularly in regard to the efficiency of mixtures of available feedstuffs in meeting these requirements. Practically nothing of a fundamental nature is known concerning the factors which contribute to the palatability of food for dogs, and this appears to be one of the most serious problems.

2) Pending the receipt of the report from the National Research Council, there are no specific recommendations regarding the directions of proposed research intended to supply needed supplementary information. However, considerable thought is at present being given to two possible lines of study: (*a*) factors controlling palatability in a dog feed; (*b*) efficiency of proteins in different combinations.

3) It is recommended that immediate steps be taken to control the use of the rapidly diminishing supply of horse meat by some such means as rationing or limiting its use for feeding pets, except in mixtures complying with food distribution order 58, to: (*a*) dogs in the armed forces; (*b*) zoölogical collections; (*c*) biological experimental laboratories; (*d*) veterinary hospitals; (*e*) dogs being fitted for use by the armed forces.

4) Some material is being prepared to be used by the Pet Animal Industry Advisory Committee as a basis for production of initial educational releases. This material in principle deals with the following: (*a*) Misconception concerning the dog's meat requirements. (*b*) Necessity for reducing protein commonly fed to dogs and how this is to be accomplished. (*c*) Practical suggestions on increasing the acceptability of commercial dog foods. (*d*) Practical suggestions as to the proper use of table leftovers and kitchen waste.

AMONG THE STATES

California

W. J. Stewart, formerly of Berkeley, who is on sick leave from the Bureau of Animal Industry, expects to be retired at the end of this year, as he will reach 70 years of age.

Canada

Lt. Col. A. E. Cameron, Royal Canadian Army, former Veterinary Director-General of Canada and AVMA Executive Board member for District I, was recently called to active duty to administer a scientific project.

Indiana

The Theobald Smith Award, gift from Eli Lilly & Company, the recipient of which is selected by the American Association for the Advancement of Science, has been reëstablished for three more years. The award consists of a bronze medal and an annual grant of $1,000 for distinguished service in the field of scientific research. The original award was for a period of five years which has expired. The name this award honors is indelibly inscribed in the *livre d'ore* of veterinary medicine, the branch of medicine which furnished the opportunity to make the historic discovery of the "insect vector."

Dr. T. L. Steenerson of Wilkinson, chairman of the board of directors of the Indiana Veterinary Medical Association, will represent his association on the WLW "Keep 'Em Healthy" broadcast, Saturday, Sept. 11, 1943, beginning at 12 noon, EWT.

Coöperating with the WLW farm department in presenting this series of programs in the interest of livestock and poultry health are the veterinary medical associations of Ohio, Indiana, and Kentucky.

Kansas

At a special meeting of the executive board of the National Association of Bureau of Animal Industry Veterinarians April 24, 1943, the name of the Association was changed to The National Association of Federal Veterinarians. The necessary papers have been filed with the corporation department of the Office of the Secretary of State of Kansas, and recorded in the office of the recorder for Wyandotte county, Kansas, the county in which the principal office of the Association is located. The change in name was necessary so that members of the meat inspection service, which was transferred from the Bureau of Animal Industry to the Food Distribution Administration, could continue their membership in the Association.

s/F.A. IMLER, *Secretary-Treasurer.*

Kentucky

State Association.—The Kentucky Veterinary Medical Association held a one-day conference on July 7, 1943 at Lexington. The following officers were elected for the new year: R. E. Cropper, Winchester, *president;* Vilo T. Rose, Elkton, *first vice-president;* T. M. Starns, Louisville, *second vice-president;* and F. H. Riester, Buechel, *secretary-treasurer.* Charles Haggarty of Lexington was elected to the executive committee, and A. S. Barnes as resident secretary of the AVMA.

s/F. H. RIESTER, *Secretary-Treasurer.*

Maine

State Association.—The Maine Veterinary Medical Association held its regular quarterly meeting at Waterville, July 14, 1943. The following program was presented:

G. M. Cairns, University of Maine, Orono: "Some Practical Solutions to the Swine Feeding Program."

Ralph Corbett, Dairyman, Orono: "Progress and Problems of Artificial Breeding of Dairy Cows in Maine." Mr. Corbett estimated that 14,000 cows will be artificially bred in Maine this year. He emphasized the need for veterinarians to be interested in handling and solving the breeding problems existing in many of the herds.

C. L. Martin, Rochester, N. H.: "How I Handle Difficult Breeding Problems in My Practice." **A. E. Coombs** and **A. J. Neal** lead the discussion.

S. W. Stiles, Falmouth Foreside; **R. E. Ingham,** Waterville; and **A. E. Coombs,** Skowhegan, participated in the clinic held at **Dr. P. R. Baird's** hospital in Waterville.

The next meeting will be held in Lewiston, Oct. 13, 1943.

s/J. F. WITTER, *Secretary-Treasurer.*

Missouri

Northeast Missouri Veterinary Medical Association.—The Association held its regular meeting at Paris on July 6, 1943. **L. A. Dykstra** of Galesburg, Ill., gave an interesting talk and showed slides on hog diseases. Dr. Dykstra is a specialist on swine diseases of the Cutter Laboratories. A round table discussion followed.

The new officers elected for the new year are as follows: Orin Ellis, Paris, *president;* Robert H. Campbell, Brookfield, *vice-president;* and C. L. Paulsen, Moberly, *secretary-treasurer.*

s/C. L. Paulsen, *Secretary-Treasurer.*

New Jersey

State Association.—The Veterinary Medical Association of New Jersey held its fifty-ninth semiannual meeting July 8, 1943, at the Lloyd Manhattan Hotel, Asbury Park. Following is the program:

J. N. Engle, W. R. Ecker and **F. H. Owens** led a panel discussion on the subject, "Feeding Dogs in War Time."

H. W. Jakeman, Boston, Mass.: "Conservation of Pork by Reduction of Swine Losses."

E. R. Cushing, Plainfield: "Veterinary Herd Problems."

There was a general discussion of the allocation of veterinary services in the morning session.

North Dakota

Druggists May Sell Hog-Cholera Virus.—Section 2, Regulation 18 as of Oct. 16, 1941, gives the green light to druggists who desire to sell hog-cholera serum and virus in the following understandable language:

"All persons, firms or corporations are prohibited from selling, distributing or using any live germs, cultures, or virulent products for the treatment of any domestic animals in this state, except with the approval of the bacteriologist and consulting veterinarian of the North Dakota Livestock Sanitary Board. Druggists may secure a permit to sell hog-cholera virus in North Dakota, but only after they have signed the following agreement with the bac-

teriologist and consulting veterinarian of the North Dakota Livestock Sanitary Board, State College Station, Fargo, North Dakota:

"I ....., representing the .....Drug Company, ..., North Dakota, due to the presence of hog cholera in my trade territory and the demand from some of the people for hog cholera virus, do hereby request a permit to sell virus, as required in Section 2 of North Dakota Livestock Sanitary Board Regulation No. 18.

"I agree to furnish the North Dakota Livestock Sanitary Board each week with the names and addresses of all people to whom I sell virus, giving the amount sold, etc.

"I agree not to sell virus except to owners of hogs to be used on their own hogs.

"I further agree not to push the sale of virus by scaring people as to the danger of hog cholera existing, and I will do all in my power to give proper advice in the administration of this product—cautioning everyone of the bad results if the virus is not properly taken care of and administered."

With each sale of hog cholera virus the druggist must furnish a "Keep Out" placard and directions for administering the virus, both of which are to be furnished to all permit holders by the North Dakota Livestock Sanitary Board, Bismarck, North Dakota."

Ohio

A speaker for another of the "Everybody's Farm Hour" features in the "Keep 'em Healthy" series over Station WLW was booked for August 14, 1943. He is A. G. Madden, Madeira, Ohio, who discussed "External Animal Parasites."

Dr. Madden represents the Ohio State Veterinary Medical Association. Other state organizations coöperating with the nation's station farm department for the "Keep 'em Healthy" series are the veterinary medical associations of Indiana and Kentucky.

Oregon

Pacific Northwest Veterinary Medical Association.—The twenty-sixth annual meeting of the Association, comprising veterinarians in Washington, Oregon, and British Columbia, was held at the Multnomah Hotel, in Portland, Ore., July 12-13, 1943. Following is the program:

E. E. Chase, Portland: "Backward Trends."

E. M. Gildow, Carnation, Wash.: "Dog Feeding Problems," and "Sterility Problems."

E. M. Dickinson, Oregon State College, Corvallis: "Coccidiosis in Domestic Animals."

A. H. Craige, Jr., Pitman-Moore Laboratories, Indianapolis: "New Developments in Chemo-Therapy," and "The Control of Mastitis."

F. W. Lange, Salem: "The Veterinarian in the Postwar Period."

E. A. Ehmer, Seattle: "Items of Interest to the Small Animal Practitioner."

E. R. Derflinger, Salem: "Fern Allergy in Cattle."

Chas. W. Bower, Topeka, Kan., president-elect, AVMA: "Matters Pertaining to the American Veterinary Medical Association," and "Rabies in Its Relation to Public Health."

O. H. Muth, Oregon State College, Corvallis: "Anaerobes in Veterinary Medicine."

S. E. Philips, Medford: "Diseases of the Eye."

E. C. McCulloch, Washington State College, Pullman: "The New Bactericidal Agents."

The Forty Year Service Awards were presented by the Oregon State Veterinary Medical Association to:

W. H. Lytle, Salem, **E. R. Flack,** Enterprise, and **Thos. Sims,** Woodburn.

s/ELWYN W. COON, *Secretary.*

Vermont

State Association.—The combined summer meeting and war conference of the Vermont Veterinary Medical Association was held at the Tavern, Montpelier, July 17, 1943. The following program was given:

N. H. Howlett, federal inspector in charge, spoke on the brucellosis eradication program as it is being carried on in Vermont.

Charles Baker, Montreal, practitioner, read an interesting and instructive paper on his experience with stilbestrol. Discussion followed.

The newly elected officers are: E. M. Powers, Bradford, *president;* D. A. Walker, Morrisville, *first vice-president;* C. F. Whitney, Burlington, *second vice-president;* G. N. Welch, Northfield, *secretary-treasurer.* N. H. Howlett, Montpelier, was elected as delegate to the AVMA war conference held in St. Louis August 25-26, and C. C. Ellis, Montpelier was elected as alternate. G. N. Welch, Northfield, was elected as resident secretary of the AVMA.

s/G. N. WELCH, *Secretary-Treasurer.*

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A. E. Janaweiz (Texas A. & M. '43) has recently been added to the staff of the Bang Laboratory, Montpelier.

COMING MEETINGS

University of Illinois Veterinary Conference. University of Illinois, Urbana. Oct. 6, 1943. Robert Graham, head, Dept. of Animal Pathology and Hygiene.

Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 7-8, 1943. C. R. Donham, head, Dept. of Veterinary Science, Purdue University.

Eastern Iowa Veterinary Medical Association. Hotel Montrose, Cedar Rapids. Oct. 12-13, 1943. R. E. Elson, Vinton, Iowa, secretary.

American Public Health Association (1790 Broadway, New York City). Wartime Public Health Conference, New York City, Oct. 12-14, 1943. Seventy-second annual business meeting of the Association will be held in connection.

Pennsylvania State Veterinary Medical Association. Penn Harris Hotel, Harrisburg, Pa., Oct. 21-22, 1943. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia, Pa., secretary.

Southern Veterinary Medical Association. Atlanta Biltmore Hotel, Atlanta, Ga., Nov. 1-2, 1943. L. A. Mosher, P. O. Box 1533, Atlanta, Ga., secretary.

Mississippi Valley Veterinary Medical Association. Fall meeting, Custer Hotel, Galesburg, Ill., Nov. 17-18, 1943. L. A. Gray, Bushnell, Ill., secretary.

Cornell University. Annual Conference for Veterinarians. Ithaca, N. Y., Jan. 5-7, 1944. W. A. Hagan, dean, Veterinary College, Ithaca, N. Y.

Meetings Postponed or Cancelled

Houston Veterinary Medical Association. Meetings postponed for the duration.

Mississippi Veterinary Medical Association. 1943 meeting postponed indefinitely.

Montana Veterinary Medical Association. The Association will not hold a meeting in 1943.

National Veterinary Practitioners Association. 1943 meeting cancelled.

South Dakota Veterinary Medical Association. Meetings postponed for the duration.

Virginia Veterinary Medical Association. Summer meeting cancelled.

BIRTHS

To Dr. (Wash., '41) and Mrs. Frank M. Herr, Route 2, Wenatchee, Wash., a daughter, Linda Lee, July 26, 1943.

To Dr. (Tex., '41) and Mrs. Irwin C. Mark, Bay City, Tex., a son, Harold Michael, Aug. 3, 1943.

To Major (Wash., '39) and Mrs. Philip A. Lee, 1717 50th St., Sacramento, Calif., their second daughter, Jan Allison, May 14, 1943.

MARRIAGES

Lt. Victor H. Blumberg, V.C., (A.P.I., '38), 1106 Constantinople St., New Orleans, 15, La., to Miss Myrtice Wright of Hickory, N. Car., May 11, 1943.

Lt. Richard A. Shea, V.C. (K.S.C., '42), 618 S. Walker, Oklahoma City, Okla., to Miss Mary Louise Johnson, R.N., of Oklahoma City, July 31, 1943.

DEATHS

J. T. Hernsheim (U.P. '97), 75 years old, Chicago, Ill., died July 11, 1943. He was born at New Orleans, La., Feb. 28, 1868. He joined the AVMA in 1900.

Richmond Kerr (Chi. '94), 98 years old, Kaukauna, Wis., died in July, 1943. He was born Jan. 1, 1846, in Quebec, Canada. He had practiced in Kaukauna from 1894 until his retirement a few years ago.

James Kral (K.S.C., '35), 30 years old, Oklahoma City, Okla., died in July, 1943, in an airplane crash at Fort Bliss, Tex., where he was stationed. Lt. Kral was born at Omaha, Neb., July 15, 1913. He served with the BAI before entering the Veterinary Corps. He joined the AVMA in 1938.

C. W. Murray (St. Jos., '11), 65 years old, Lacygne, Kan., died June 19, 1943. He was in active practice until the time of his death.

Maynard S. Nighbert (Ont., '07), 61 years old, Pittsfield, Ill., died July 15, 1943. He had been associated with and succeeded his father, the late Dr. J. D. Nighbert, in a general practice which he continued until his retirement a few years ago. He was the sixth veterinarian in his family of relatives.

Mrs. Anna M. Osterholtz, 92 years old, St. Louis, Mo., died July 28, 1943. She was the mother of Dr. Wm. F. Osterholtz (K.C.V.C., '18), St. Louis, Mo., and grandmother of Dr. H. J. Osterholtz (K.S.C., '34), Shawnee, Okla., and Dr. W. E. Osterholtz (K.S.C., '35), Oklahoma City, Okla. Mrs. Osterholtz was born in Ottendorf, Germany, June 19, 1851, and had lived in St. Louis since 1881. Her son and one grandson are members of the AVMA.

Reginald C. Patterson (Colo., '21), 52 years old, Prescott, Ark., died July 19, 1943. He was born at Leon, Kan., Sept. 30, 1891. Dr. Patterson had served with the BAI in Texas and Arkansas. He joined the AVMA in 1930.

THE VETERINARY PROFESSION AND THE WAR

Deferment of Veterinarians Rests on Essentiality To Community

Because the Selective Service System will not defer veterinarians who are not essential in their communities and very few of those who are inducted into the Army can expect to receive commissions, the Directing Board of the War Manpower Commission's Procurement and Assignment Service is urging nonessential doctors of veterinary medicine to relocate in communities where their services are urgently needed.

In a letter to state chairmen for veterinarians the Directing Board says it has been informed that local boards of Selective Service, in classifying a registrant, will consider his essentiality in the community to which he may move.

"Therefore," the Board states in its letter, "if a Doctor of Veterinary Medicine is found not essential in his community but moves to one where he is essential, consideration will be given to an occupational classification.

"In order to safeguard and provide veterinary medical service where it is essential, you are requested to encourage necessary relocations and make appropriate recommendations in behalf of the veterinarians concerned to your state director of Selective Service."

Change of Address

The headquarters of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, War Manpower Commission, have been removed to:

1778 Pennsylvania Ave., N.W.,
Washington 25, D. C.

What the Newspapers Say

(Excerpts from Educational Publicity Material issued by the AVMA Public Relations Department.)

Houston (Tex.) Press
(July 12, 1943)

Elimination of two livestock diseases, mastitis and Bang's disease, would solve wartime milk and butter shortages in short order, the American Veterinary Medical Association reports.

Mastitis reduces milk output 20 to 25 per cent, according to Dr. M. G. Fincher, chairman of the Committee on Diseases of Dairy Cattle. Cows in herds infected with Bang's disease produce about 20 per cent less milk, he said, in a report released by the Association. . . .

Springfield, (Mo.) Leader
(Apr. 25, 1943)

Even with the war, we still have a tremendous lot to learn about conservation. . . .

In this country, the president of the American Veterinary Medical Association reports that if only half the animals which die each year from preventable diseases were kept alive, they would more than supply the additional meats needed for the war. . . .

Greeley, (Colo.) Tribune
(April 23, 1943)

Dr. I. E. Newsom, dean of the division of veterinary medicine at Colorado State College, was awarded the honor alumnus plaque during commencement exercises at the college in Fort Collins, Friday. . . .

He is a member of numerous professional and scientific societies including the . . . American Veterinary Medical Association. . . .

Lexington (Ky.) Herald
(May 3, 1943)

Fresh, clean pastures for spring lambs will mean more surgical sutures . . . , according to an appeal to farmers issued by the American Veterinary Medical Association.

"The Army and Navy . . . need . . . more sutures, and the best sutures are made from sheep-gut," says the appeal made by Dr. F. E. Hull of the Kentucky Agricultural Experiment Station, chairman of the Association's committee on sheep diseases.

Reduces Losses of Cattle Incident to Shipping

For several years, Dr. Ray Matkin of Rockport, Missouri, has employed a method of preventing losses by infection incident to shipping which has produced phenomenal results. Scores of other veterinarians have now tried this method and report results far superior to those obtained from methods formerly employed.

Briefly, the method is as follows: In handling calves going into feed lots, Anti-Hemorrhagic Septicemia Serum (Lockhart) is administered in dosage of 8 to 10 c.c. per hundred pounds weight of calf immediately before shipment, and the dose is repeated when calves arrive at destination. In most cases, double treatment is not practical and it has been found that equally as good results are obtained from the administration of 12 to 15 c.c. of serum per hundred pounds weight immediately after calves arrive at destination.

Anti-Hemorrhagic Septicemia Serum (Lockhart) is prepared from mature bovines known to be immune to the various shipping fevers of cattle, and we believe that this plus value accounts for the superior results obtained from its use.

Field results have shown that the most efficient and economical method yet devised for preventing losses from infections incident to the shipment of cattle is the administration of relatively small dosage of Anti-Hemorrhagic Septicemia Serum (Lockhart).

ASHE LOCKHART, INC.

"Producers of Better Biologicals
for Graduate Veterinarians."

800 Woodswether Road Kansas City, Missouri

Announcing 3 New Jen-Sal Product

FLI-THANE

for Flies 1

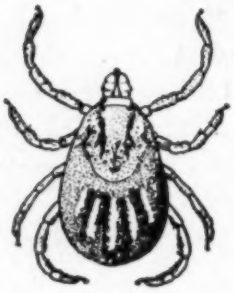
Jen-Sal

A concentrated, inert-free, synthetic thiocyanate product which, diluted 1 pint to 19 parts distillate or kerosene, makes 2½ gallons of AA-efficiency working fly spray. This profitable dispensing item pleases every farmer client by its economy and efficiency.

Pint bottles	**$1.50**
Gallon bottles	**9.00**

TICK-THANE

for Ticks 2



Jen-Sal

Synthetic thiocyanates combined with pine oil in a kerosene and mineral oil base. Active ingredients 56 per cent. Tick-Thane is used to rid dogs, cats, etc., for ticks in a 5 to 10 per cent dilution in water—either as rinse water or as a dipping bath.

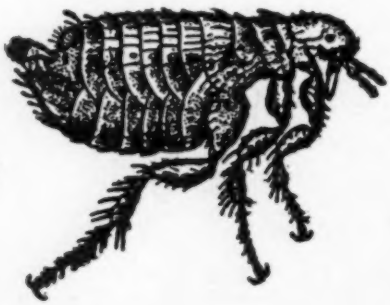
Pint bottles	**$1.50**
Gallon bottles	**9.00**

FLEA-THANE

Jen-Sal

Synthetic thiocyanates, combined with pine oil in a talc base. This new and effective flea dusting powder replaces war-scarce pyrethrum or derris powders for use on dogs, cats, rabbits, foxes, and poultry. Supplied in neat 4 ounce blue dispensing cartons with tear labels, and in bulk packages.

for Fleas 3



Pkg. twelve 4 oz. cartons	**$ 2.50**
Six pkgs. (72 cartons)	**14.25**
Twelve pkgs. (144 cartons)	**27.00**
Bulk pkg. per pound	**.60**

Above Prices Subject to 10 Per Cent Trade and 2 Per Cent Cash Discounts

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